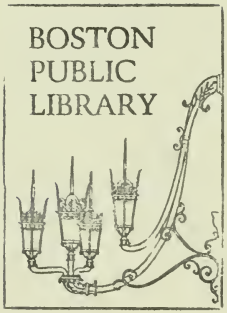
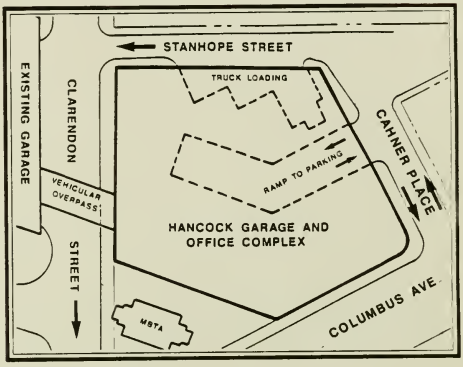
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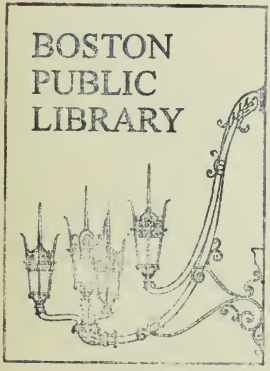

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HANCOCK GARAGE AND OFFICE COMPLEX TRAFFIC STUDY





JULY 22, 1988

Prepared for:
ZALDASTANI ASSOCIATES, INC.
7 Water Street
Boston, Massachusetts 02109

Prepared by:

HMM ASSOCIATES, INC.
ENGINEERS, ENVIRONMENTAL CONSULTANTS & PLANNERS
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HMM ASSOCIATES INC.
ENGINEERS, ENVIRONMENTAL CONSULTANTS & PLANNERS

HMM Ref. No. 2689-2/TRAN/683

July 22, 1988

Mr. Maarten Henkes, AIA
Director, Building Group
ZALDASTANI ASSOCIATES, INC.
7 Water Street
Boston, MA 02109

RE: Hancock Garage and Office Complex Traffic Study Update

Dear Mr. Henkes:

HMM Associates, Inc. (HMM), is pleased to transmit this Traffic Study Update for the proposed Hancock Garage and Office Complex in Boston, Massachusetts. This report analyzes the intersection operations and level of service in the vicinity of the proposed Hancock Garage and Office Complex for the following design years and conditions:

- 1988 AM/PM Existing
- 1991 AM/PM No-Build
- 1991 AM/PM Build Without Overpass to existing Hancock Garage
- 1991 AM/PM Build With Overpass to existing Hancock Garage
- 2010 PM No-Build - (Herald Street Extension to Clarendon St.)
- 2010 PM Build - (Herald Street Extension to Clarendon St.)
- 2010 PM No-Build - (Herald Street Extension to Columbus Ave.)
- 2010 PM Build - (Herald Street Extension to Columbus Ave.)

This Traffic Report will be presented to the Boston Transportation Department and the Boston Redevelopment Authority on Friday July 22nd.

If you have any questions or comments, please contact me at 371-1692.

Very truly yours,

Robert D. Klimm
Associate

RDK:ldg

Enclosure

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EXECUTIVE SUMMARY

- Introduction

The proposed Hancock Garage and Office Complex will supply a total of 521 parking spaces on 9 floors. The proposed garage entry and exit ramp is 36 feet wide and is located on Cahner Place. An off-street loading area, which can support up to eight 5- to 7-ton postal vehicles, is located along Stanhope Street. An optional vehicular overpass across Clarendon Street can provide access to the third level of the existing Hancock Garage from the proposed Hancock Garage and Office Complex.

The uses proposed for the Hancock Garage and Office Complex are:

- 4,326 square feet* of retail space;
- 44,718 square feet* of office space; and
- 47,814 square feet* of post office space (includes 2,000± post office boxes, 222 postal employees and 8 finance windows).

Separate future evaluations were made for the following conditions:

(1) 1991 No-Build
(2) 1991 Build with a vehicular overpass connecting the proposed garage with the existing Hancock Garage
(3) 1991 Build without a vehicular overpass connecting the two garages.
(4) 2010 No-Build with the Herald Street Extension to Columbus Avenue.
(5) 2010 No-Build with the Herald Street Extension to Clarendon Street.
(6) 2010 Build with the Herald Street Extension to Columbus Avenue.
(7) 2010 Build with the Herald Street Extension to Clarendon Street.

- Design Year:

The results of the future (1991) traffic analysis indicates that the AM/PM level of service with the vehicular overpass vs. without the vehicular overpass are the same for 6 of the 8 locations. There will be an improvement in the PM LOS at Claredon Street at Stanhope Street, and also an improvement in the AM LOS at Columbus Avenue at Dartmouth Street if the

* Gross Square Feet (GSF).

vehicular overpass were constructed. The 1991 Build (with overpass) condition as compared to the 1991 no-build indicates that the AM/PM LOS are the same for 7 of the 8 locations. There will be a slight drop in LOS from C to D at Stanhope and Clarendon Streets.

From a traffic operations standpoint, alone, the Clarendon Street vehicular overpass may not be warranted. However, several benefits that this vehicular overpass would offer from a general circulation and parking management standpoint include:

(1) The vehicular overpass offers direct access to the Massachusetts Turnpike westbound, without traversing local streets;

(2) The overpass offers an alternative access point to Cahner Place. Without the overpass, only one garage access/egress is provided.

We recommend at this time that the vehicular overpass connection be seriously considered since this would reduce pedestrian-vehicle conflicts and improve the level of service at the Stanhope-Clarendon intersection. Currently this location displays substantial pedestrian traffic crossing the entrance to the Massachusetts Turnpike westbound.

It is proposed that Cahner Place remain a two-way facility and that Stanhope Street remain one-way, westbound. The two-way Cahner Place is preferred to allow the dispersion of project traffic.

- 2010 Design Year:

HMM collected traffic volume data* developed for the City and analyzed the effects of Herald Street Extension Alternatives P-3A and P-3B. The results are that four (4) study area locations will operate at LOS C or better, and two (2) locations will operate at LOS D, which is acceptable in an urban area. The additional trips generated by the proposed Hancock Garage and Office Complex will not change the LOS at any location for either Herald Street alternate.

---

* Source: Bruce Campbell Associates: Marginal Street and Herald Street. Preliminary Traffic Analysis 2010 (Feb. 22, 1988)

- Conclusions:

None of the intersections studied displayed inadequate levels of service for either design year, therefore no major roadway improvements are recommended at the locations studied. We do, however, suggest that the future signal timing be reviewed and revised to provide for maximum optimization.

Traffic management techniques can reduce site-generated automobile usage and thereby lessen the need for roadway and traffic control improvements, or provide for the more efficient use of any improvements provided. Several specific measures are outlined in Section 5.3 of this report.

INTRODUCTION

1. INTRODUCTION

1.1 Description of the Proposed Project

The proposed Hancock Garage and Office Complex site is located east of the existing Hancock Garage and is bordered by Clarendon Street on the west, Stanhope Street on the north, Cahner Place on the east, and Columbus Avenue to the south. The current use of the site is an at-grade parking lot managed by Kinney Systems of Boston, Inc., and the right of way for the Massachusetts Turnpike (I-90). The Turnpike will pass below the south half of the proposed Garage and Office Complex (see location map on Figure 1).

The proposed Hancock Garage and Office Complex will supply a total of 521 parking spaces on 9 floors. The proposed garage entry and exit ramp is 36 feet wide and is located on Cahner Place. An off-street loading area, which can support up to eight 5- to 7-ton postal vehicles, is located along Stanhope Street. An optional vehicular overpass across Clarendon Street can provide access to the third level of the existing Hancock Garage from the proposed Hancock Garage and Office Complex (see site plan on Figure 2).

The other uses proposed for the Hancock Garage and Office Complex are:

- 4,326 square feet* of retail space;
- 44,718 square feet* of office space; and
- 47,814 square feet* of post office space (includes 2,000± post office boxes, 222 postal employees and 8 finance windows).

The proposed project is expected to be open and operational by 1991, which is one design year which has been analyzed herein. In addition, the traffic operations in 2010 have been analyzed, which is the future design year for the proposed Herald Street/Marginal Street Extension. Bruce Campbell Associates are currently developing and evaluating the traffic volumes for several options of the Herald Street Extension and we have utilized their latest 2010 PM peak hour volume projections.

1.2 Study Purpose

The following traffic study has been prepared to update a previous traffic assessment** of the proposed Hancock Garage and Office Complex. Several major comprehensive

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* Gross square feet (GSF).

** Hancock Garage Feasibility Study, Segal D. Sarcina Associates, January 31, 1985.

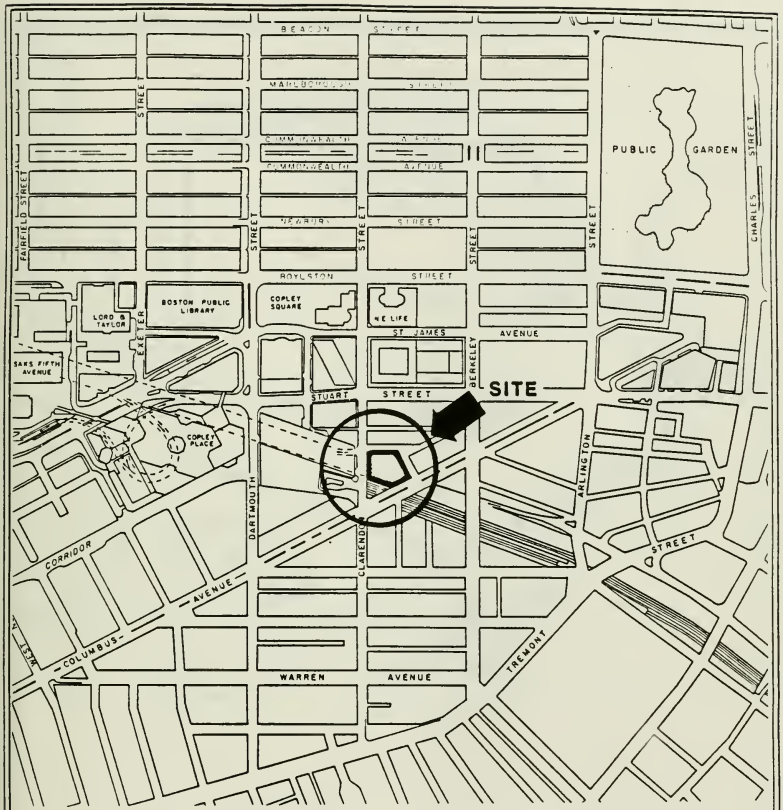


FIGURE 1
HANCOCK GARAGE AND OFFICE COMPLEX
LOCATION MAP

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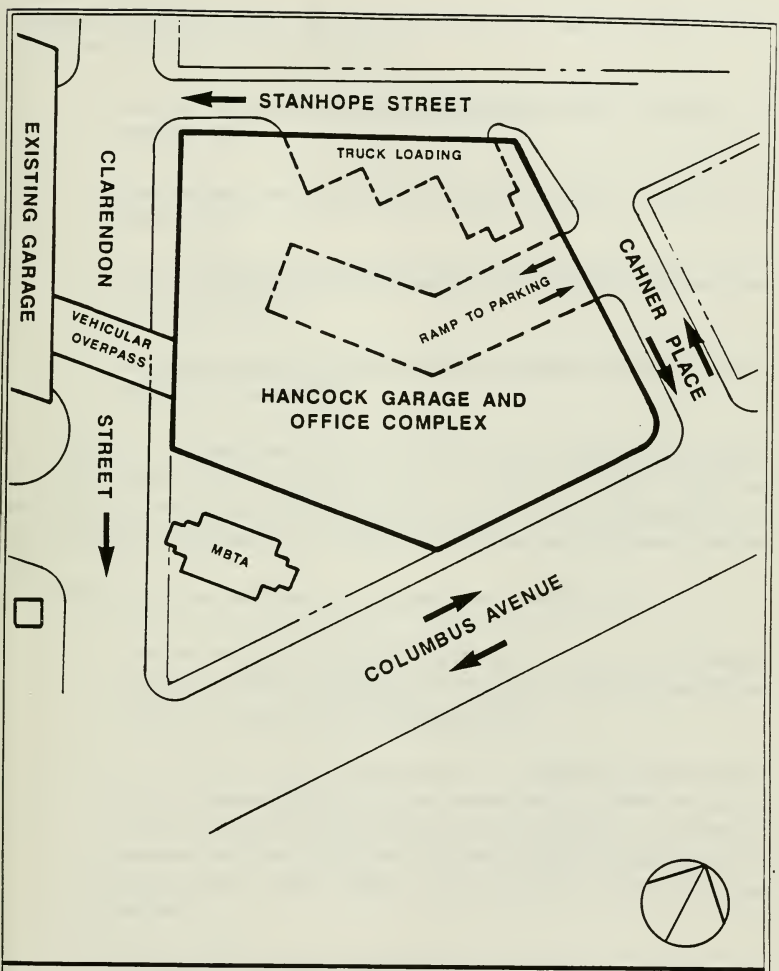


FIGURE 2
HANCOCK GARAGE AND OFFICE COMPLEX
SITE

transportation planning studies for the Back Bay area have been recently conducted. These studies were reviewed for relevancy and included:

- Back Bay Neighborhood Traffic Engineering Study, HMM Associates, Inc., September, 1985.

- Back Bay Area Land Use and Trip Generation, Cambridge Systematics, Inc., February, 1988.

- Profile of Existing Transportation Conditions in the Back Bay, HMM Associates, Inc., September, 1987.

- 500 Boylston Street Draft Environmental Impact Report, Skidmore, Owing & Merrill, et al., October 1984.

The focus of this traffic study has been to provide an updated traffic baseline condition, upon which potential project related traffic impacts can begin to be assessed. This is not intended to be a detailed Transportation Access Plan (required by the City under Section 31), but does provide an analytical framework to evaluate the potential impacts of the project on adjacent areas.

The approach to this traffic study was a four-step process described below:

1. Recent data and reports conducted within the area were reviewed with Zaldastani Associates, John Hancock Mutual Insurance Company, and the U.S. Postal Service regarding their requirements for the proposed project.

2. New AM and PM turning movement counts were collected and peak hour traffic flows were updated in the vicinity of the proposed project. Available parking data for the existing Hancock Garage (volumes, turnover, occupancy) and available trip generation data for the United States Post Office Facility (employees, shifts, # of post office boxes, cashier windows, loading bays) were included in the data collection.

3. Trip generation, distribution, assignment and levels of service were determined for the following AM and PM peak hour conditions:

- 1988 Existing;
- 1991 No-Build (excluding the Hancock Garage and Office Complex);
- 1991 Build with the Clarendon Street vehicular overpass (including the Hancock Garage and Office Complex with vehicular overpass crossing Clarendon Street); and
- 1991 Build without the Clarendon Street vehicular overpass (including the Hancock Garage and Office Complex, without the vehicular overpass).
- 2010 No-Build without the Clarendon Street overpass and including the Herald Street (one-way) Extension to Columbus Avenue.
- 2010 No-Build without the Clarendon Street overpass and including the Herald Street (one-way) Extension to Clarendon Street.
- 2010 Build without the Clarendon Street overpass and including the Herald Street (one-way) Extension to Columbus Avenue.
- 2010 Build without the Clarendon Street overpass and including the Herald Street (one-way) Extension to Clarendon Street.

4. Site traffic circulation, truck turning radii, loading areas, and pedestrian-vehicular conflict areas were reviewed, and modifications to the site plan and studied intersections were recommended to improve safety and level of service operations.

PROFILE OF 1988
EXISTING CONDITIONS

2. PROFILE OF 1988 EXISTING CONDITIONS

2.1 Roadway and Vehicular Site Access

The Hancock Garage and Office Complex site is located at the northeast corner of the intersection of Clarendon Street and Columbus Avenue over the Massachusetts Turnpike (I-90) right-of-way in the Back Bay area. The proposed project may include a vehicular overpass linking the proposed development to the existing Hancock Parking Garage. As previously indicated, the project site is bounded on the south by Columbus Avenue, east by Cahner Place, north by Stanhope Street, and on the west by Clarendon Street. Clarendon Street bisects the existing garage and the proposed expansion project.

Columbus Avenue (Route 28) is a major arterial in the area. It is a bi-directional roadway facility with thru movements separated by a three foot raised concrete median. It is a major access road for Back Bay area commuters traveling to and from the residential areas in southern Boston, and also serves as a major access to the downtown Boston area. Cahner Place bridges the Massachusetts Turnpike and connects Stanhope Street with Columbus Avenue.

Stuart Street is an eastbound one-way street beginning at Copley Square and extending eastward approximately half of a mile to Kneeland Street. It serves as a connecting street to major roadways for Back Bay traffic.

Dartmouth Street, a collector roadway, connects Storrow Drive to the north and Tremont Street to the south. It is a one-way street north of Stuart Street (northbound only) and bi-directional south of Stuart Street.

Clarendon Street parallels Dartmouth Street, and is one-way southbound, extending from Storrow Drive to Tremont Street. It is a major access roadway for Back Bay area commuter traffic bound for the South Boston area or the Massachusetts Turnpike westbound, via the on-ramp located under the existing Hancock garage.

The existing John Hancock parking garage has three access points. Two helical drum type one-way ramps located opposite Trinity Place off Stuart Street and at Clarendon Street opposite Stanhope Street. Presently these two drums serve the fourth to eighth floors of the parking garage. The main ramp entrance/exit ramp located at Clarendon Street serves the short-term parking for floors 1-3. Both helical ramps are open during AM peak hours for entering traffic, and during PM peak hours for exiting traffic. These ramps are closed the remainder of the day. The main ramp entrance is open for two-way traffic during the entire business day.

Motorists using the the existing garage travelling westbound on the Massachusetts Turnpike can access the on-ramp which is located at the Clarendon Street helical ramp without accessing Clarendon Street or Stuart Street.

The following is a more detailed description of the major roadways and intersections in the vicinity of the proposed project:

- Columbus Avenue

Columbus Avenue is an east/west oriented arterial roadway. In the vicinity of the site Columbus Avenue is signalized at it's intersection with Berkeley, Clarendon and Dartmouth Streets. Columbus Avenue is under the jurisdiction of the City of Boston and the posted speed limit is 30 mph.

- Berkeley Street

Berkeley Street is a north/south oriented collector roadway. In the vicinity of the site, Berkeley Street is designated as a one way street with traffic flow in the north direction. Berkeley Street is under the jurisdiction of the City of Boston and the posted speed limit is 30 mph.

- Clarendon Street

Clarendon Street is a north/south oriented collector roadway. In the vicinity of the site Clarendon Street is designated a one way street with vehicle flow in the south direction. Clarendon Street is under the jurisdiction of the City of Boston and the posted speed limit is 30 mph.

- Dartmouth Street

Dartmouth Street is a north/south oriented collector roadway. In the vicinity of the site Dartmouth Street is a two-way roadway south of Stuart Street. North of Stuart Street, this roadway is a one way street with vehicular flow in the north direction. Dartmouth Street is under the jurisdiction of the City of Boston and the posted speed limit is 30 mph.

- Stuart Street

Stuart Street is an east/west oriented roadway which provides local access to the study area. In the vicinity of the site Stuart Street is designated a one way street with vehicular flow in the eastbound direction only. Stuart Street is under the jurisdiction of the City of Boston and the posted speed limit is 30 mph.

- Stanhope Street

Stanhope Street is an east/west oriented collector roadway. In the vicinity of the site Stanhope is designated a one way street with vehicular flow in the westbound direction only. Stanhope Street is under the jurisdiction of the City of Boston and the posted speed limit is 25 mph.

- Intersection of Stuart Street at Clarendon Street

At this intersection, Stuart Street consists of three operating lanes in the eastbound direction within a total pavement width of approximately 52 feet. Parking is permitted on both sides of the roadway. Clarendon Street consists of two operating lanes in the southbound direction within a total pavement width of approximately 35 feet. Parking is provided on both sides of the roadway except during the AM and PM peak hours. Presently this intersection operates under two-phase signal control.

- Intersection of Clarendon Street at Columbus Avenue

At this intersection Clarendon Street consists of two operating lanes in the southbound direction within a total pavement width of approximately 38 feet. Columbus Street consists of two operating lanes in each direction within a total pavement width of approximately 58 feet. Parking is permitted on both sides of the roadway. Presently this intersection is under two-phase signal control.

- Intersection of Columbus Avenue at Dartmouth Street

At this intersection, Columbus Avenue consists of two operating lanes in each direction within a total pavement width of approximately 52 feet. Parking is permitted on both sides of the roadway. Dartmouth Street provides one operating lane in each direction within a total pavement width of approximately 39 feet. Presently this intersection is under two-phase signal control.

- Intersection of Dartmouth Street at Stuart Street

At this intersection, Stuart Street consists of three operating lanes in the eastbound direction within a total pavement width of approximately 60 feet, including a channelized left turn lane northbound. Parking is permitted on both sides of the roadway. South of the intersection of Stuart Street, Dartmouth Street provides one operating lane in each direction within a total pavement width of approximately 55 feet. Thru movements are separated by a raised median. North of this intersection, Dartmouth Street consists of two operating lanes in the northbound direction within a total pavement width of approximately 72 feet. Presently this intersection is under two phase signal control.

- Intersection of Stuart Street at Trinity Place

At this intersection, Stuart Street consists of three operating lanes in the eastbound direction within a total pavement width of approximately 60 feet. Parking is permitted on both sides of the roadway. Trinity Place consists of one operating lane in each direction within a total pavement width of approximately 25 feet. Presently this intersection operates under STOP sign control with vehicles exiting the intersection on Trinity Place being required to stop.

- Intersection of Stanhope Street at Clarendon Street

At this intersection Stanhope Street consists of one operating lane in the westbound direction within a total pavement width of approximately 20 feet. Parking is permitted on one side of Stanhope Street. Clarendon Street consists of two lanes in the southbound direction within a total pavement width of approximately 38 feet. The intersection is currently under STOP sign control with vehicles entering the intersection from Stanhope Street being required to stop.

Intersection of Columbus Avenue at Cahner Place

At this T intersection Columbus Avenue consists of two operating lanes in each direction within a total pavement width of 58 feet. Parking is permitted on both sides of the roadway. Cahner Place consists of one operating lane in each direction within a total pavement width of approximately 25 feet. Presently this intersection operates under STOP sign control with vehicles entering the intersection from Cahner Place being required to stop.

2.2 Mass Transportation Service

The major mass transportation facility within close proximity to the proposed project is the new Back Bay Station, which provides MBTA Orange Line and Commuter rail service. The MBTA Green Line Copley Station, as well as several commuter bus stops, are also located within walking distance of the site.

2.3 Existing Traffic Volume Levels

AM and PM peak hour traffic volume data was collected in 1988 for the following locations:

- Columbus Avenue at Dartmouth Street;
- Stuart Street at Dartmouth Street;
- Stuart Street at Trinity Place;
- Stuart Street at Clarendon Street;
- Clarendon Street at Stanhope Street;
- Clarendon Street at Hancock Garage Driveway;
- Clarendon Street at Back Bay Station Driveway;
- Clarendon Street at Columbus Avenue;
- Cahner Place at Columbus Avenue;
- Mass. Pike (I-90) westbound on-ramp;
- Trinity Place Drum entry/exit; and
- Clarendon Street Drum entry/exit.

These 1988 counts were balanced for the above locations. The traffic flows on Dartmouth Street between Stuart Street and Columbus Avenue were not balanced due to entering and

exiting vehicles at the Back Bay Garage and an off-street parking lot. Compared to previous studies* slight variations were attributed to the opening of the Back Bay MBTA Station.

The AM peak hour occurs between 8:00 and 9:00 AM and the PM peak hour occurs between 5:00 and 6:00 PM. The resultant AM and PM 1988 existing peak hour volumes are presented in Figures 3 and 4, respectively.

2.4 Traffic Operations Analysis

In assessing both existing and estimated future traffic performance, traffic capacity and level of service (LOS) analyses have been conducted at the key intersections in the study area, in accordance with the Transportation Research Board's 1985 Highway Capacity Manual.** Traffic signal cycle lengths were obtained from signal permits, and verified manually in the field during peak commuter hours. On urban streets, critical points most often occur at intersections, with traffic flow constrained by signals or STOP/YIELD sign control. Consequently, capacity/LOS assessments were performed for study area intersections.

Levels of Service range from A to F (i.e., from best to worst) and, for signalized intersections, also represent relative degrees of motorist delay. LOS A indicates little or no delay, with practically all traffic clearing a signal on the same cycle (green-amber-red-green sequence) on which it arrives. At LOS conditions progressively continue to B, C, and D, delays increase, with more traffic having to wait to clear the intersection until subsequent signal cycles. With increased saturation, traffic volumes approach the roadways capacity at LOS E, beyond LOS E flow will break down for a variety of reasons, such that volumes may drop while queueing and delays increase. LOS F is characterized by average stopped delay per vehicle exceeding one minute. LOS D or better is generally considered acceptable for urban conditions. The "V/C ratio", when noted, expresses the ratio of the demand traffic volume to the maximum roadway capacity.

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* Profile of Existing Transportation Conditions in the Back Bay, HMM Associates, Inc., September 1987.

** Highway Capacity Manual, "Transportation Research Board Special Report 209, 1985.

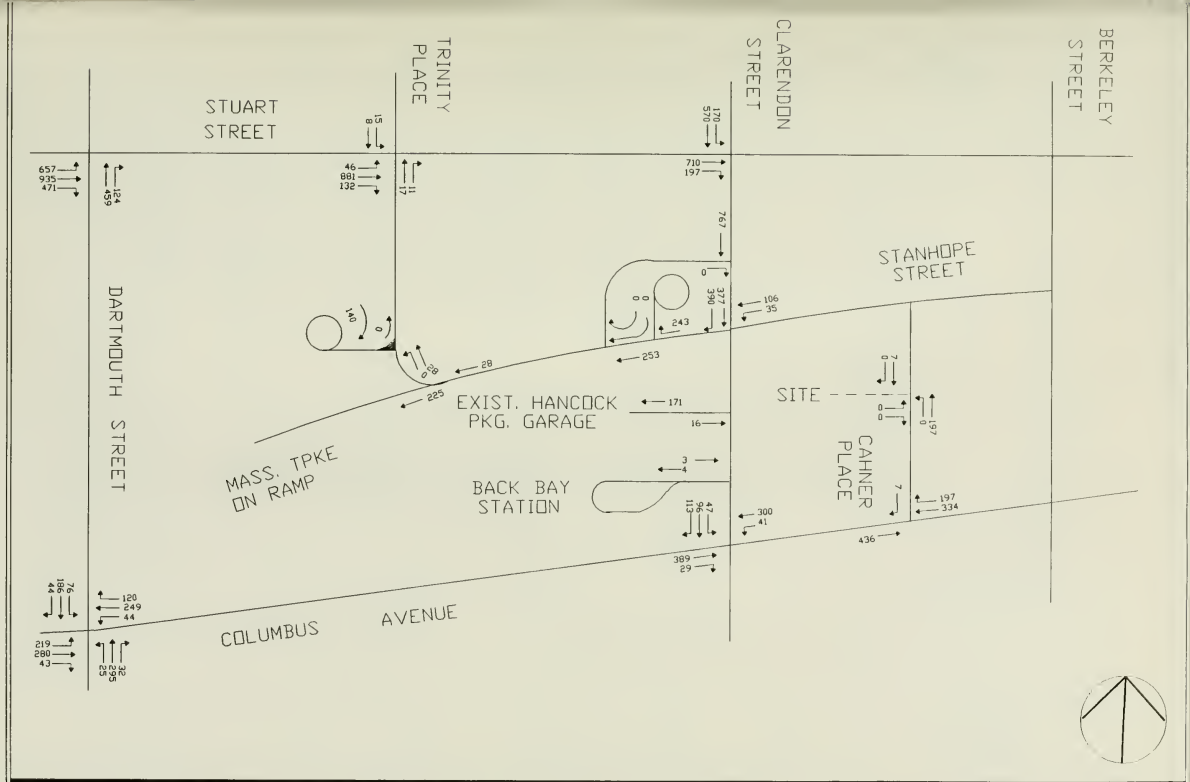


FIGURE NO.3

1988 EXISTING TRAFFIC VOLUMES AM PEAK HOUR

HMM ASSOCIATES INC.

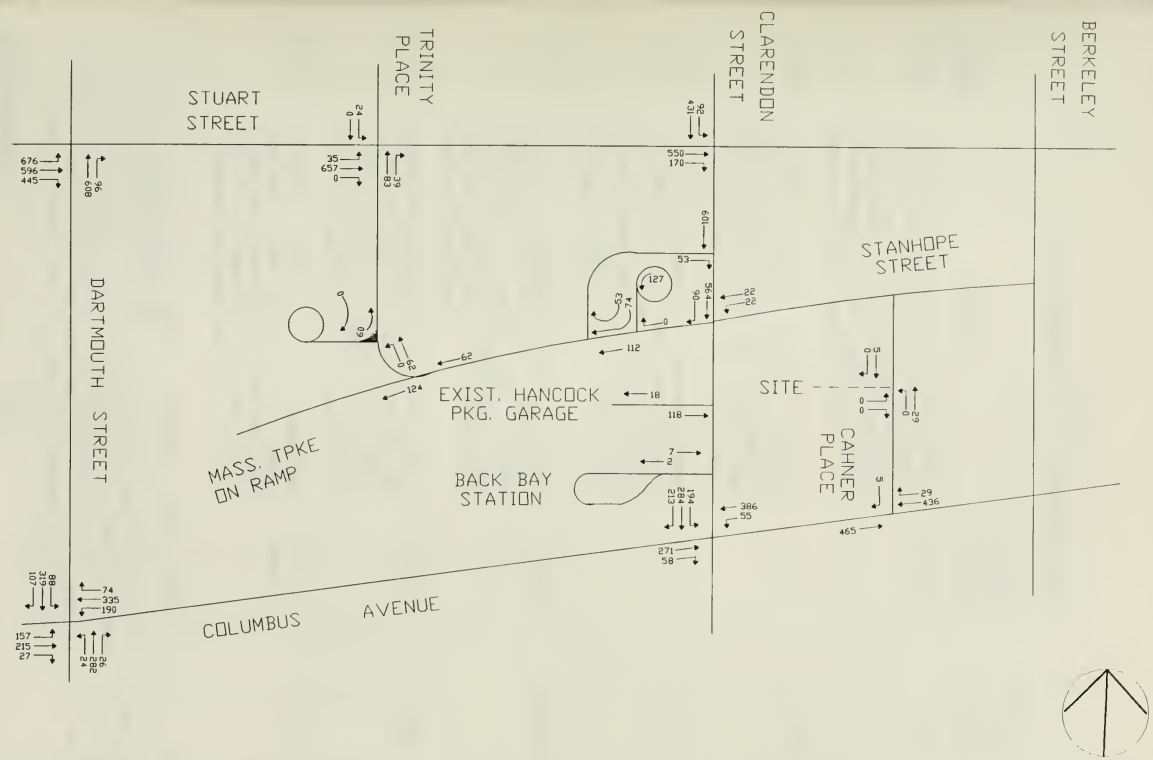


FIGURE NO. 4

1988 EXISTING
TRAFFIC VOLUMES
PM PEAK HOUR

HMM ASSOCIATES INC.

TABLE 1

LEVEL OF SERVICE (LOS) DESIGNATIONS*

Category	Description	Delay Range** (Seconds per vehicle	Reserve*** Capacity (Passenger Cars Per Hour)
LOS A:	Describes a condition of free flow, with low volumes and relatively high speeds. There is little or no reduction in maneuverability due to the presence of other vehicles, and drivers can maintain their desired speeds. Little or no delays result for side street motorists.	0.00-05.0	400
LOS B:	Describes a condition of stable flow, with desired operating speeds relatively unaffected, but with a slight deterioration of maneuverability within the traffic stream. Side street motorists experience short delays.	5.1-15.0	300-399
LOS C:	Describes a condition still representing stable flow, but speeds and maneuverability begin to be restricted. The general level of comfort begins to deteriorate noticeably at this level. Motorists entering from side streets experience average delays.	15.1-25.0	200-299
LOS D:	Describes a high-density traffic condition approaching unstable flow. Speeds and maneuverability become more seriously restricted, and the driver experiences a poor level of comfort. Side street motorists may experience long delays.	25.1-40.0	100-199
LOS E:	Represents conditions at or near the capacity of the facility. Flow is usually unstable, and freedom to maneuver within the traffic stream becomes extremely difficult. Very long delays may result for side street motorists.	40.1-60.0	0-99
LOS F:	Describes forced flow or breakdown conditions with queuing along critical approaches. Operating conditions are highly unstable as characterized by erratic vehicle movements along each approach.	60.1 or greater	N/A

* Source: "Highway Capacity Manual", Transportation Research Board Special Report 209; National Research Council, 1985.

** Delay ranges relate to the mean stopped delay incurred by all vehicles entering the intersection and do not consider the effects of traffic signal coordination. This criteria is intended for use in the evaluation of signalized intersections.

*** Reserve capacity refers to the unused capacity of the minor approach, on a per lane basis. This criteria is limited to use in the evaluation of unsignalized intersections.

For non-signalized intersections, the factor of delay is measured in Reserve Capacity. Reserve capacity represents the number of traffic gaps per hour in main stream traffic which are not used by a sidestreet traffic demand. These available gaps (of acceptable length) would occur at times when no sidestreet vehicle is present to utilize them. At zero Reserve Capacity, all available, acceptable gaps are taken. For minus Reserve Capacity, sidestreet demand exceeds available gaps. The relationship of LOS criteria with delay and reserve capacity is presented in Table 1.

Table 2 presents a summary of the existing AM and PM peak hour operations for the study area intersection locations. As shown, all locations currently operate at LOS C, or better during both peak hours.

2.5 Existing Parking Overview

2.5.1 Study Area Parking Characteristics

Projections made in a 1983 comprehensive city-wide parking study* noted a slight deficit in parking supply in the general area of the proposed project. In order to address the off-street parking supply shortage, and not to effect economic development and growth, the 1983 study recommended either an increase in limited long-term off-street parking spaces by building new parking facilities, or an increase in the public transportation use by commuters in the area.

2.5.2 Existing Hancock Garage Parking Characteristics

According to the parking supply data supplied by the John Hancock Parking Garage, there are currently 1998 parking spaces in this eight story garage. The complete parking supply by locations and categories is summarized in Table 3. Within the garage there are 1,411 spaces designated for long term parking only, and 24 VIP parking spaces on the first floor. The remaining 563 spaces on floors 2 and 3 are designated for monthly pass and short term parking for the public.

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* Parking in Central Boston: Meeting the Access Needs for a Growing Downtown, Cambridge Systematics, Inc., December,1983.

TABLE 2

1988 EXISTING LEVEL OF SERVICE SUMMARY

Signalized Intersections

Intersection	AM LOS*	AM Delay (sec)	PM LOS	PM Delay (sec)
Stuart St. & Dartmouth St.	B	8.6	B	9.3
Stuart St. & Clarendon St.	C	15.5	B	12.4
Columbus Ave. & Clarendon St.	B	8.1	B	11.1
Columbus Ave. & Dartmouth St.	B	13.7	C	17.3

Unsignalized Intersections

Intersection	AM LOS	AM Reserve Capacity	PM LOS	PM Reserve Capacity
Stuart St. & Trinity Pl.	C	211	B	396
Stanhope St. & Clarendon St.	C	267	B	395
Columbus Ave. & Cahner Pl.	A	905	A	857

* LOS = Level of Service Summary.

TABLE 3
EXISTING JOHN HANCOCK GARAGE
PARKING SUPPLY SUMMARY

Location	Number of Spaces	Usage
1st Floor	24	VIP (Long-term)*
2nd Floor	281	Short-term & Monthly Pass Long-term**
3rd Floor	282	Short-term & Monthly Pass Long-term**
4th Floor	282	Long-term*
5th Floor	282	Long-term*
6th Floor	280	Long-term*
7th Floor	281	Long-term*
8th Floor	286	Long-term*
TOTAL	1,998	

* John Hancock Employee Parking.
** Tenant and Visitor Parking.

The existing parking operations allow long term parking spaces (mainly used by the employees in the John Hancock Building) to be accessed between the garage and street system through the helical ramps during peak hours and through the main ramp entrance during both peak and off-peak hours. The short term parking spaces can only be accessed via the Clarendon Street main entrance.

According to the existing John Hancock garage access plan, traffic from eastbound Massachusetts Turnpike can get off at the Prudential exit and directly enter the garage at the Trinity Drum through the intersection of Dartmouth Street with Stuart Street during the AM peak hours. AM peak hour traffic on Storrow Drive can reach the garage via Clarendon Street directly. During the PM peak hour, site traffic can access the Massachusetts Turnpike at the Clarendon Street drum. Site-generated traffic typically utilizes major arterials in the area and does not impact traffic on local residential streets.

The management of the garage maintains consistent daily parking space utilization data.* Since the existing Hancock garage is mainly used for the long term parking, it is necessary to know the commuter parking demand at the peak hour and the commuter peak parking accumulation. Based on the data summary, the commuter peak parking accumulation occurs at approximately 10 AM, after the morning peak hour. The parking demand, occupancy, and percent utilization are summarized in Table 4.

A standard practice used in analyzing parking conditions is to compare the usage of a facility with its practical capacity. Practical capacity is defined as the practical limit of available parking spaces at any one given time (the supply), recognizing that it is impossible for every parking space within a system or facility to be occupied during the peak hours due to maneuvering and space searching. The practical capacity of a parking garage is generally achieved at an occupancy rate of 90-95 percent of physical capacity. Therefore, when a facility experiences parking usage of 90 percent or more of its physical capacity, it is essentially fully used, and does not provide a surplus of spaces.

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* Source: Mr. Gabriel Legesse, Kinney System of Boston, Inc.

TABLE 4

EXISTING JOHN HANCOCK GARAGE PARKING CHARACTERISTICS FOR 10:00 AM ON AN AVERAGE WEEKDAY*

Supply:	•	Long-term (employee) spaces	1,435
	•	Short-term (visitor) and long-term (tenant) spaces	563
		TOTAL	1,998
Demand: (total parking demand on a typical weekday)	•	Long-term (employee) parking demand	1,363
	•	Short term (visitor) and long term (tenant) parking demand	541
		TOTAL	1,904
Utilization:	•	Long-term (employee) parking demand	95%
	•	Short-term (visitor) and long-term (tenant) parking demand	96%

* Data obtained in June, 1988. Source: John Hancock Parking Garage Management Office.

As shown in Table 4, the results of a survey taken on a typcial weekday for the month of June show that ninety-five (95%) of the 1,435 long term employee spaces were utilized at 10 AM by 1,363 John Hancock employee vehicles. Also, ninety-six percent (96%) of the 563 short-term visitor and long-term tenant spaces were utilized by 541 vehicles.

1991 FUTURE NO-BUILD TRAFFIC ANALYSIS

3. 1991 FUTURE NO-BUILD TRAFFIC ANALYSIS

3.1 1991 Future No-Build Traffic Volumes

In order to evaluate the impact of future non-project related traffic, volumes for a 1991 No-Build condition were estimated based upon information presented in the 500 Boylston Street Study,* and recent discussions with the Boston Transportation Department.

The peak volumes and distributions of trips associated with these developments were developed based upon data presented in 500 Boylston Street Study.* These volumes were then added to the existing traffic volume flows for an estimate of future peak hour volumes without the proposed project. The 1991 AM and PM peak hour volumes are presented in Figures 5 and 6, respectively.

3.2 1991 Future No-Build Traffic Operations

Using the traffic volumes presented in Figures 5 and 6, an analysis of AM and PM peak hour operations was conducted. No significant roadway or intersection improvements were assumed for this analysis. The results of the 1991 No-Build traffic operations analysis are presented in Table 5.

No-Build traffic from developments scheduled to be completed by 1991 will have only a nominal effect on peak hour operations at the locations studied. Although there are projected lowerings of levels of service at the following locations, all intersections studied are expected to operate at LOS D or better for the 1991 No-Build AM and PM peak hour periods:

LOS Impacts for 1991 No-Build Condition VS. 1988 EXISTING

· Stuart Street at Dartmouth Street	AM peak hour - no change in LOS PM peak hour - no change in LOS
• Clarendon Street at Stuart Street:	AM peak hour - no change in LOS PM peak hour lowered from LOS B to LOS C
• Clarendon Street at Columbus Avenue:	AM peak hour - no change in LOS PM peak hour - no change in LOS

* 500 Boylston Street Draft Environmental Impact Report, Skidmore, Owings & Merrill, et al., October 1984.

- Columbus Avenue at Dartmouth Street: AM peak hour lowered from LOS B to LOS C; PM peak hour lowered from LOS C to LOS D
- Clarendon Street at Stanhope Street: AM peak hour - no change in LOS; PM peak hour lowered from LOS B to LOS C
- Stuart Street at Trinity Place: AM peak hour lowered from LOS C to LOS D; PM peak hour lowered from LOS B to LOS C
- Columbus Avenue at Cahner Place: AM peak hour - no change in LOS; PM peak hour - no change in LOS

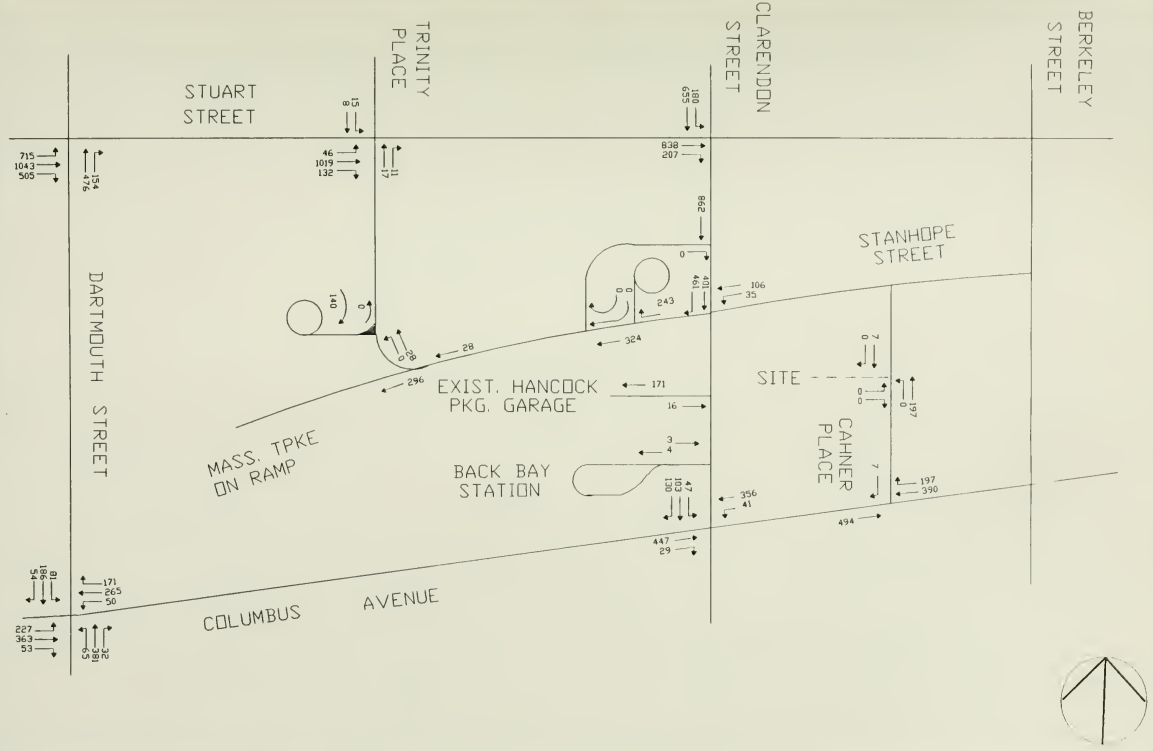


FIGURE NO.5

1991 FUTURE NO-BUILD
TRAFFIC VOLUMES
AM PEAK HOUR

HMM ASSOCIATES INC.

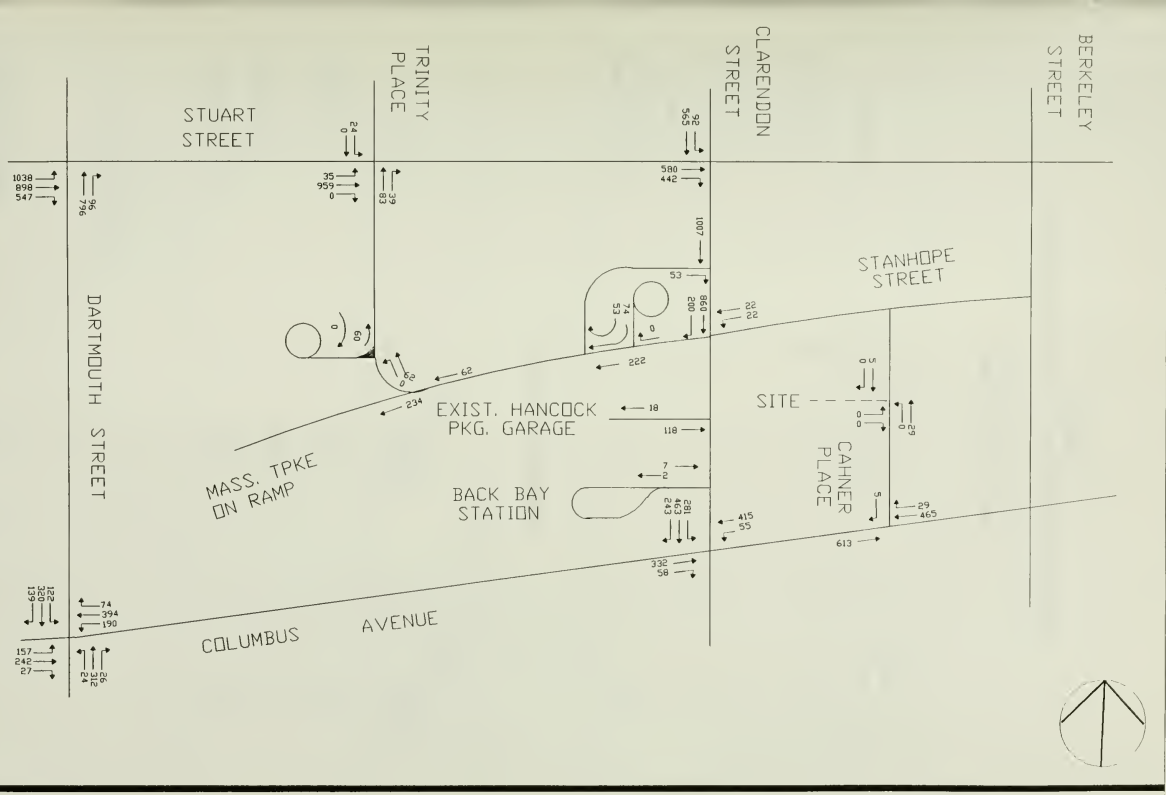


FIGURE NO.6

1991 FUTURE NO-BUILD
TRAFFIC VOLUMES
PM PEAK HOUR

HMM ASSOCIATES INC.

TABLE 5

1991 NO-BUILD LEVEL OF SERVICE SUMMARY

Signalized Intersections

Intersection	AM LOS*	AM Delay (sec)	PM LOS	PM Delay (sec)
Stuart St. & Dartmouth St.	B	9.1	B	11.0
Stuart St. & Clarendon St.	C	18.3	C	16.6
Columbus Ave. & Clarendon St.	B	8.2	B	13.1
Columbus Ave. & Dartmouth St.	C	18.4	D	26.0

Unsignalized Intersections

Intersection	AM LOS	AM Reserve Capacity	PM LOS	PM Reserve Capacity
Stuart St. & Trinity Pl.	D	163	C	233
Stanhope St. & Clarendon St.	C	221	C	217
Columbus Ave. & Cahner Pl.	A	877	A	843

* LOS = Level of Service.

1991 BUILD
TRAFFIC ANALYSIS

4. 1991 FUTURE BUILD TRAFFIC ANALYSIS

4.1 Project Trip Generation

Daily person trip generation rates were determined for each of the three proposed site uses for both work and non-work trips. The daily person trip generation rates refer to the total daily number of one-way trips generated for all modes per unit of development. Daily person trip rates for the office and retail uses were developed on the basis of existing information from other Back Bay developments (Copley Place, Prudential Center, and 500 Boylston Street).

The daily person trip rates for the post office land use are based upon the following information collected from the U.S. Postal Service.* The Hancock Garage Post Office facility will house 222 employees that will be transferred from the existing mail facility on Stuart Street. The main shift begins at 6:00 AM and ends at 2:30 PM, with the majority of the postal carriers walking their routes. Estimated daily truck trips are 24 in/24 out beginning at 4:30 AM, and ending at 7:00 PM. There will be 2,000 post office boxes available at this facility for public and business uses, and there will be 8 service windows for collecting mail and packages, stamp sales, address changes, etc. The weekly sales (6 days) are expected to be $65,000 for this facility.

The daily person trips for the post office are estimated to be as follows:

Post Office Daily Person Trips One Way	Trip Purpose
222	Employees report to work
24	Employees enter via truck
1805	Customers enter for transaction ($65,000 divided by 6 days at $6 average transaction yields 1,805 customers)
1,400	Customers enter for P.O. Box access (70% of 2000 boxes)
200	Customers enter for transaction and P.O. Box access (10% of 2,000 boxes)

Total = 3,651 inbound person-trips/day.

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* Source: U.S. Postal Service, Mr. John Platt (Director of Operations)

The total number of trips divided by the gross square footage yields (3651/47,814) = 76.35 trips/1000 SF. Therefore, 5.14 employee trips/1000 SF and 71.21 non-employee trips/1000 SF are estimated for the post office.

The Daily Person Trips (one-way) for the three land uses are shown in Table 6.

4.2 Modal Usage

The total person trips generated by the Hancock Garage and Office Complex were split between auto, transit and walk trips to determine the total daily trips by transportation mode. Previous surveys of Prudential Center employees and visitors were used to determine the mode splits for office and retail work trips and office non-work trips. The results of the Prudential Center shopper survey were used to determine the mode split for retail non-work trips. The post office modal splits for employees were assumed to be similar to office work trip modal splits. The post office non-employee (other) trips were assumed to be comparable to retail mode splits for the area. Conversations with postal officials confirmed the fact that the majority of the non-work post office trips would be by foot or transit. The resulting modal split percentages are shown in Table 7.

4.3 Vehicle Occupancy Characteristics

Information on average auto occupancy (persons per vehicle) was obtained from recent area surveys, the Copley Place EIR,* and the Parkside West Transportation Access Plan.** The average vehicle occupancy for employees working at the post office was assumed to be 1.4 persons per vehicle. This occupancy rate is slightly lower than other office surveys indicating an average rate of 1.5 persons per vehicle. This is due to an early shift beginning at 6:00 AM which would tend to result in lower vehicle occupancies. The vehicle occupancy rate for non-employees was assumed to be 1.6. The average vehicle occupancy characteristics and AM/PM peak hour trips are shown in Table 6.

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* Copley Place Environmental Impact Report, HMM Associates, Inc., 1980.
** Parkside West Transportation Access Plans, HMM Associates, Inc., 1988.

TABLE 6
DAILY PERSON TRIPS AND PEAK HOUR VEHICLE TRIPS

Development Type	Daily Person Trip Generation Rate[1] (One-Way)	Daily Person Trips In	Daily Person Trips Out	% Peak Hour Contribution[4] AM In	AM Out	PM In	PM Out	Peak Hour Person Trips AM In	AM Out	PM In	PM Out	Mode Split Auto[6] %	Peak Hour Auto[5] Occ.	Peak Hour Vehicle Trips AM In	AM Out	PM In	PM Out	Parking Turnover[4] (Daily veh. per space)	Alloc. Parking Spaces[7]
OFFICE																			
44,718 GSF[2]																			
Employees	4.1	183	183	.55	.00	.00	.55	101	0	0	101	45	1.5	30	0	0	30	1	55
Others[3]	2.5	112	112	.10	.00	.00	.20	11	0	0	22	57	1.2	5	0	0	10	2.67	20
RETAIL																			
4,326 GSF																			
Employees	2.7	12	12	.10	.00	.10	.20	1	0	1	2	26	1.4	1	0	0	1	1	2
Others	15.6	67	67	.00	.00	.05	.10	0	0	3	7	22	1.6	0	0	1	1	2.67	4
POST OFFICE																			
47,814 GSF																			
Employees	5.14	246	246	.34	.06	.06	.34	84	15	15	84	45	1.4	27	5	5	27	1	79
Others	71.21	3,405	3,405	.07	.07	.12	.12	238	238	409	409	20	1.6	30	30	51	51	10	42
ADJACENT OFFICE[8] (for remaining spaces)																			
Employees	4.1	890	890	.55	.00	.00	.55	490	0	0	490	45	1.5	146	0	0	146	1	267
	Total =	4,915	4,915			Total =		925	253	428	1,115	Site Trips =		239	35	57	266		
												Net Addt'l Site Trips = Due to replacing existing parking lot		0	0	0	0	Spaces Replaced	52
													Total =	239	35	57	266	Total =	521

NOTES:
1. Rates developed based upon data prepared for:
   The Prudential Survey, Cambridge Systematics, 1987;
   The 500 Boylston Street DEIR, Skidmore Owings Merrill et al. Oct '84;
   The Copley Place EIR, HMM Associates, Inc. 1980; and discussions with Mr. John Platt of the U.S. Postal Service.
2. GSF = Gross Square Feet.
3. Visitors, Shoppers, etc.
4. Rates based upon the Pavillion at Park Square Transportation Overview, HMM Associates, 1988 and discussions with the U.S. Postal Service.
5. Rates based upon the Copley Place EIR and the Parkside West Transportation Access Plan, HMM Associates, 1988.
6. Rates from the Prudential Survey, Cambridge Systematics, 1987.
7. Result of Daily Trips times mode split divided by auto occupancy and divided by parking turnover.
8. Not located on this site.

TABLE 7

MODAL SPLIT FACTORS*

Development Type		% Auto	% Transit	% Walk
Office	Employees	45	51	4
	Others**	57	17	26
Retail	Employees	26	58	16
	Others	22	23	55
Post Office	Employees	45	45	10
	Others	20	30	50

* Factors developed based upon data prepared for The Prudential Survey, Cambridge Systematics, 1987; and discussions with the U.S. Postal Service.

** Visitors, shoppers, etc.

4.4 Peak Hour Trip Making Characteristics

The number of peak hour person trips for the office, retail, and post office uses at the proposed Hancock Garage and Office Complex were results from multiplying the gross square footage by the daily person trip rate by the peak hour percentage. Peak hour person trips were multiplied by the automobile mode split and divided by the vehicle occupancy to obtain the AM/PM peak hour vehicle trips. The AM and PM peak hour vehicle trips for the three (3) land uses are shown as a subtotal on Table 6.

In Section 4.7 of this report, we have computed that the office, retail, and post office uses will require 202 spaces, and the existing lot on the site holds 52 spaces, therefore there will be an excess parking supply (521-202-52) of 267 spaces. The trips generated by these 267 spaces were assumed to be by employees of surrounding office uses. The primary objective of this project is to provide some additional long term parking for either the John Hancock Building or adjacent office buildings, and not to attract new parking demand which will increase auto trips in the area. The total peak hour trips for the office, post office, retail, and John Hancock employees is shown on Table 6.

4.5 Estimates of Trip Distribution

Vehicle trips generated by the proposed project were assigned to the adjacent roadway system using two different access scenarios (i.e., with access to adjacent parking garage, and without access to the adjacent parking garage). The vehicular trip distribution patterns were based on the 500 Boylston Street Project EIR.*

Table 8 presents the estimated arrival/departure distribution percentages.

4.6 Traffic Impacts of Proposed Project

4.6.1 Build Traffic Volumes

The traffic volumes associated with the proposed project were added to the 1991 No-Build flows, and assigned to the roadway network based upon the above trip distributions. Separate assignments were made for:

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* 500 Boylston Street Draft Environmental Impact Report, Skidmore, Owings & Merrill, et al., October 1984.

TABLE 8

TRIP DISTRIBUTIONS*

Sector	Percentage
Northeast of Site (Arlington St.)	16%
Southeast of Site (Berkeley St.)	24%
Southwest of Site (Columbus St.)	20%
West of Site (Boylston St.)	25%
Northwest of Site (Exeter St.)	15%

* Source: 500 Boylston Street Draft Environmental Impact Report, Skidmore, Owings & Merrill et al., October 1984.

(1) The project with a vehicular overpass connecting the proposed garage with the existing Hancock Garage; and

(2) The project with no vehicular overpass, using only the access onto Cahner Place.

The site generated traffic was assigned to the local roadway network based upon the above distributions. The AM and PM site traffic assignments for the conditions with and without the Clarendon Street overpass are presented in Figures 7 through 10. These volumes were added to the 1991 No-Build flows to develop the 1991 Build volumes under the various conditions. The resultant AM and PM peak hour volumes for these two 1991 Build conditions are presented in Figures 11 through 14, as follows:

Figure 11: 1991 AM Peak Hour Volumes, with the proposed project and the Clarendon Street vehicular overpass

Figure 12: 1991 PM Peak Hour Volumes, with the proposed project and the Clarendon Street vehicular overpass

Figure 13: 1991 AM Peak Hour Volumes, with the proposed project and without the Clarendon Street vehicular overpass

Figure 14: 1991 PM Peak Hour Volumes, with the proposed project and without the Clarendon Street vehicular overpass

4.6.2 Build Traffic Operations

Each intersection was analyzed using existing geometry, the two trip distribution patterns and the projected peak hour traffic volumes are shown in Figures 11, 12, 13 and 14. The results of these analyses are presented in Table 9 along with the results of the prior analyses of existing and future No-Build conditions.

The projected 1991 level of service with the proposed project is the same for the alternatives with and without the Clarendon Street vehicular overpass, except for Columbus Avenue at Dartmouth Street where the LOS improves from LOS D to LOS C and Stanhope Street at Clarendon Street where the LOS improves from LOS D to LOS E. Compared to the 1991 No-Build condition, the 1991 Build alternative with or without the Clarendon Street overpass results in the same AM peak hour operations at all locations studied. There is also no change in levels of service for the AM or the PM peak hours (between the 1991 No-Build and Build alternatives) at all locations.

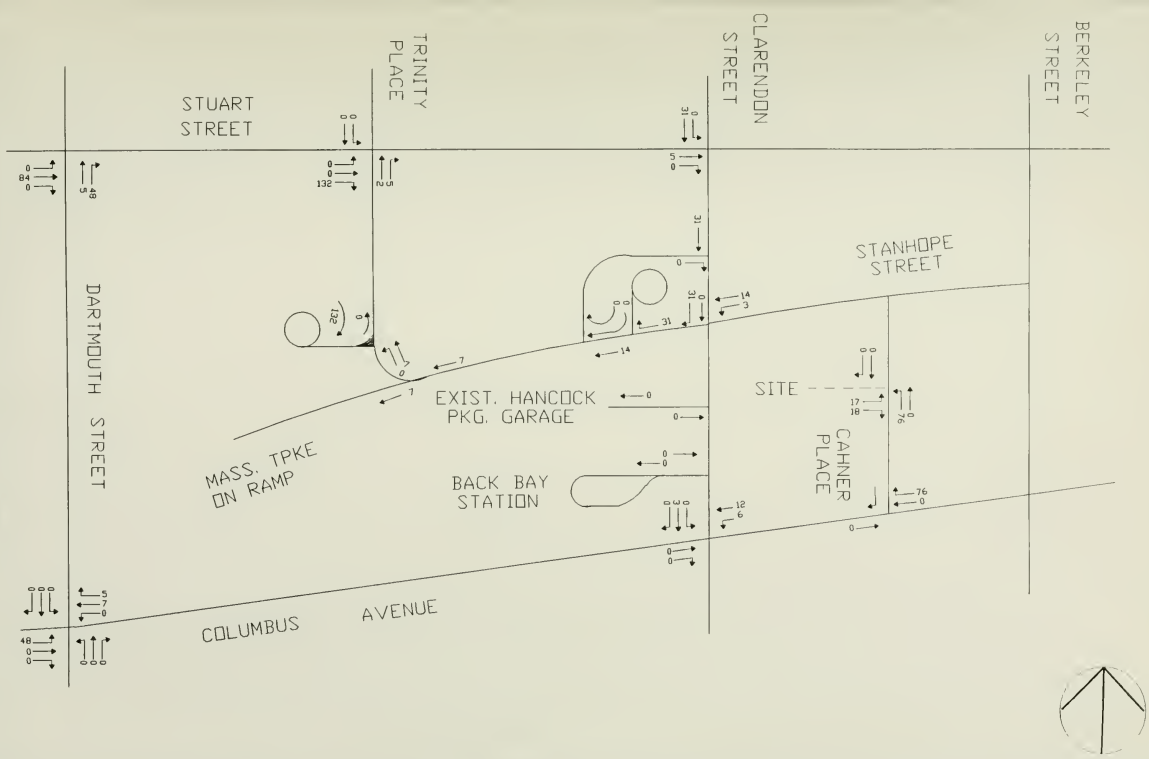


FIGURE NO. 7

SITE-GENERATED TRAFFIC VOLUMES WITH OVERPASS AM PEAK HOUR

HMM ASSOCIATES INC.

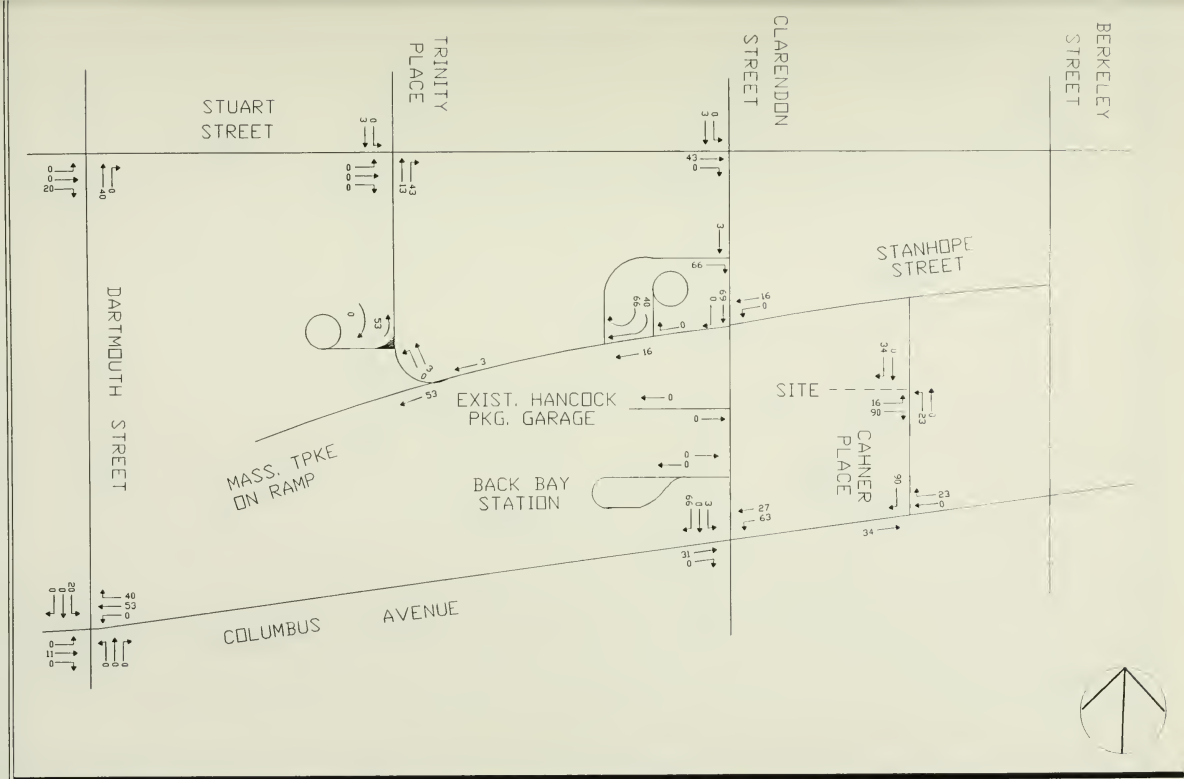


FIGURE NO.8

SITE-GENERATED TRAFFIC VOLUMES WITH OVERPASS PM PEAK HOUR

HMM ASSOCIATES INC.

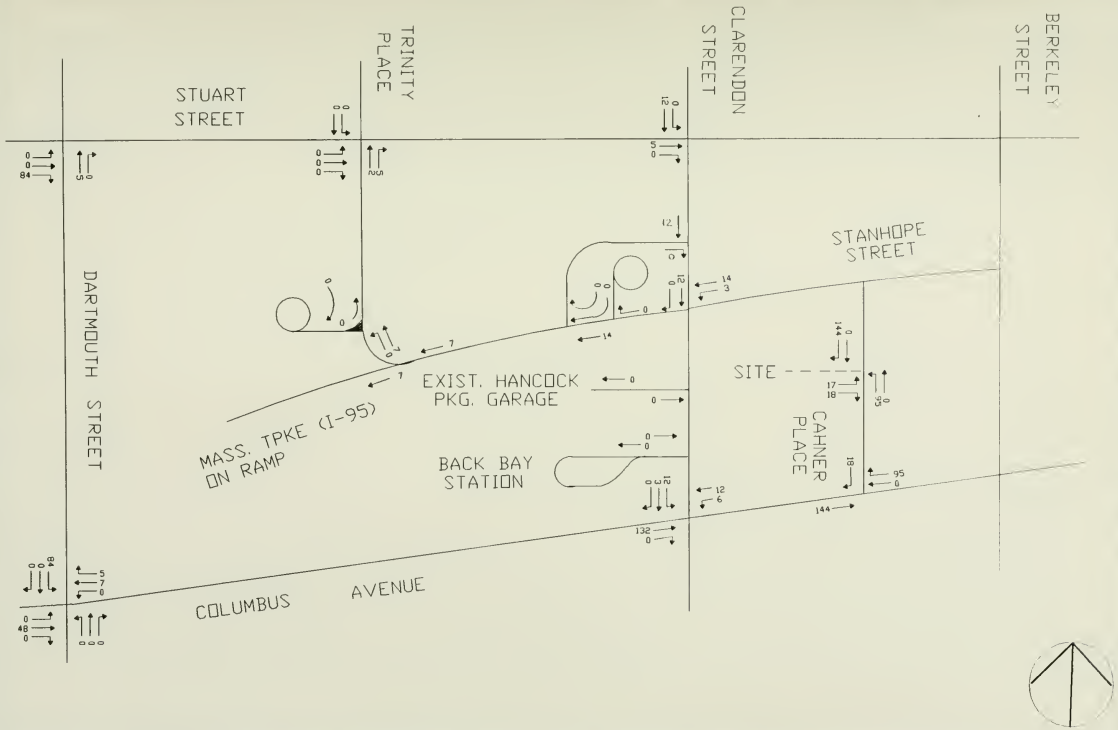


FIGURE NO.9

SITE-GENERATED TRAFFIC VOLUMES WITHOUT OVERPASS AM PEAK HOUR

HMM ASSOCIATES INC.

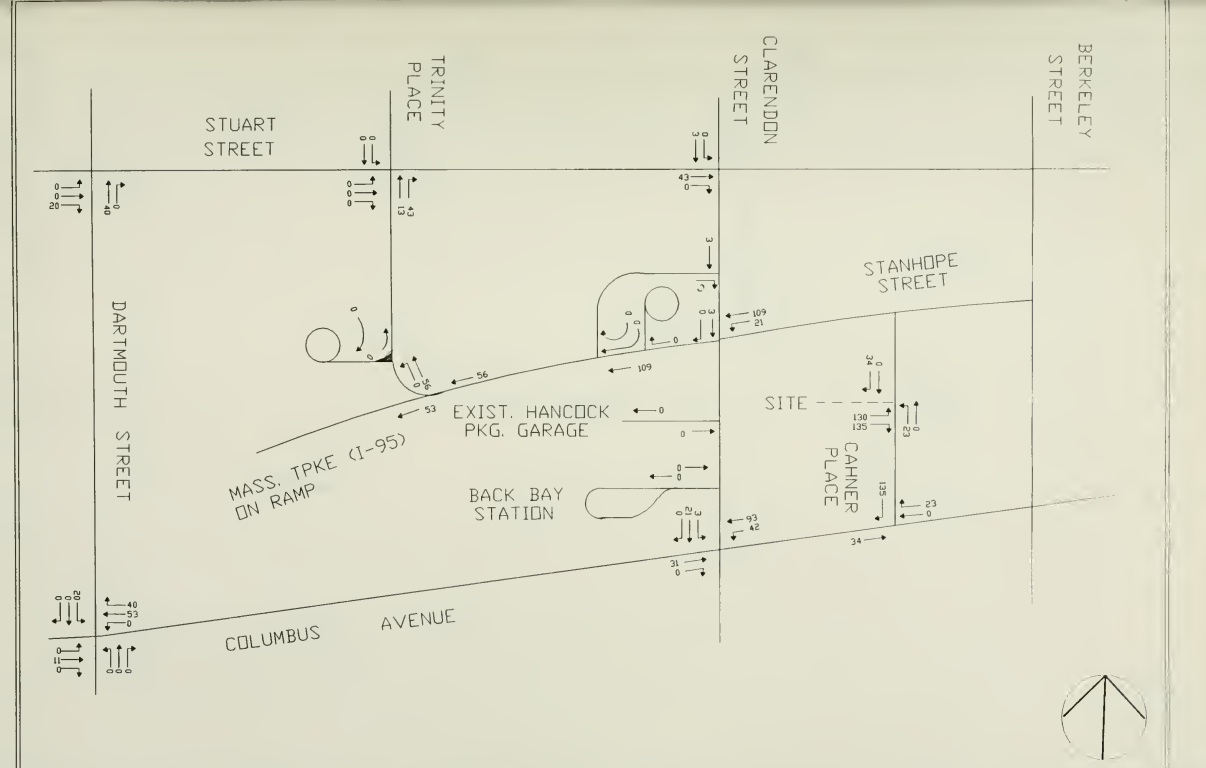


FIGURE NO. 10

SITE-GENERATED TRAFFIC VOLUMES WITHOUT OVERPASS PM PEAK HOUR

HMM ASSOCIATES INC.

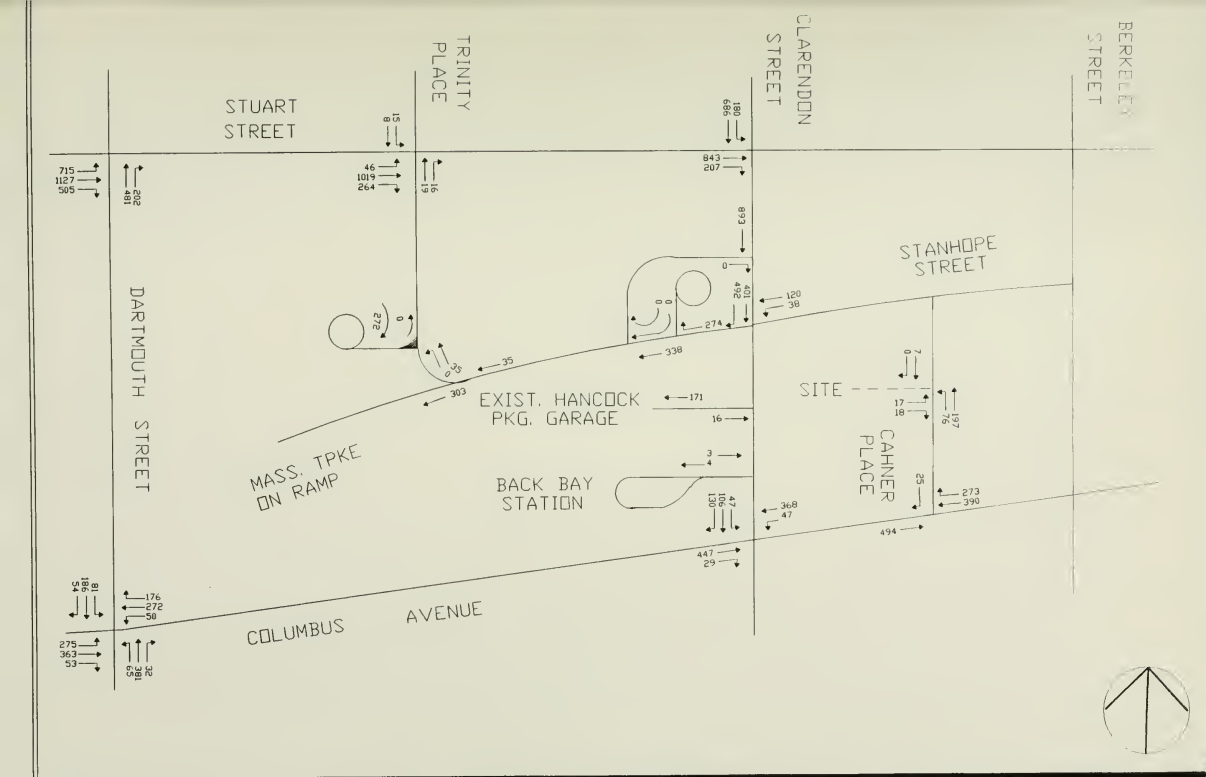


FIGURE NO. 11

1991 FUTURE BUILD TRAFFIC VOLUMES WITH OVERPASS AM PEAK HOUR

HMM ASSOCIATES INC.

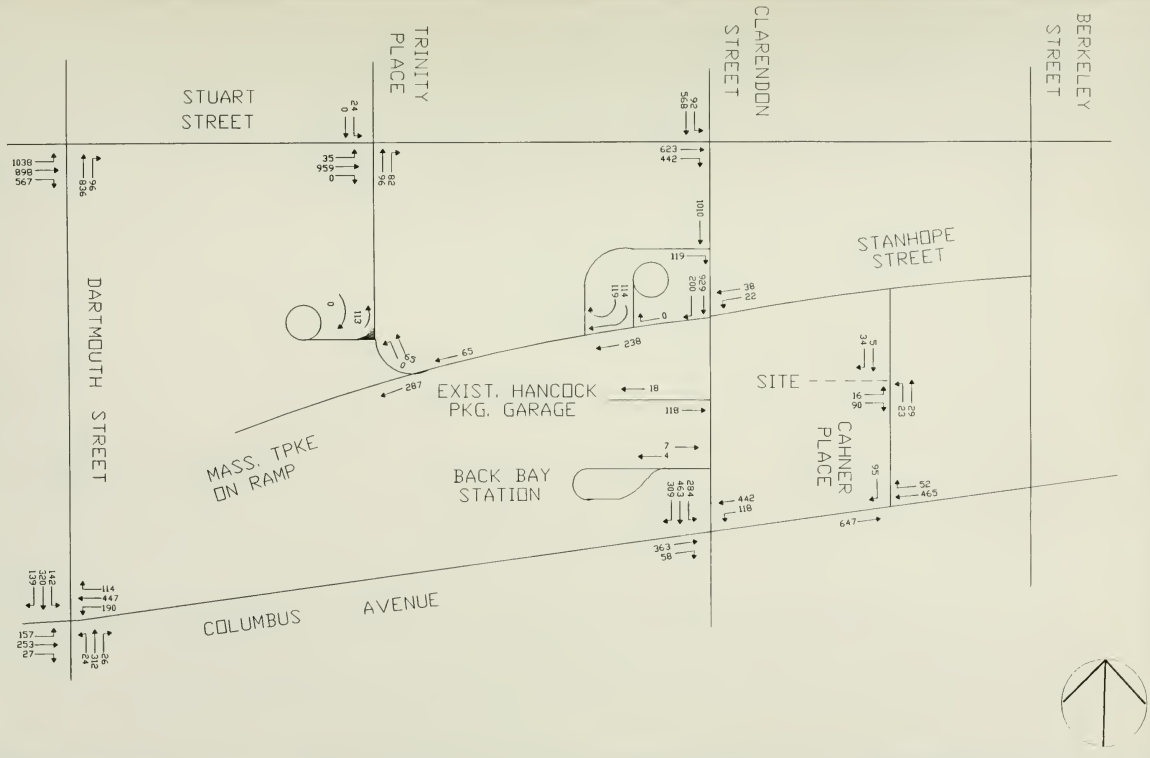


FIGURE NO. 12

1991 FUTURE BUILD TRAFFIC VOLUMES WITH OVERPASS PM PEAK HOUR

HMM ASSOCIATES INC.

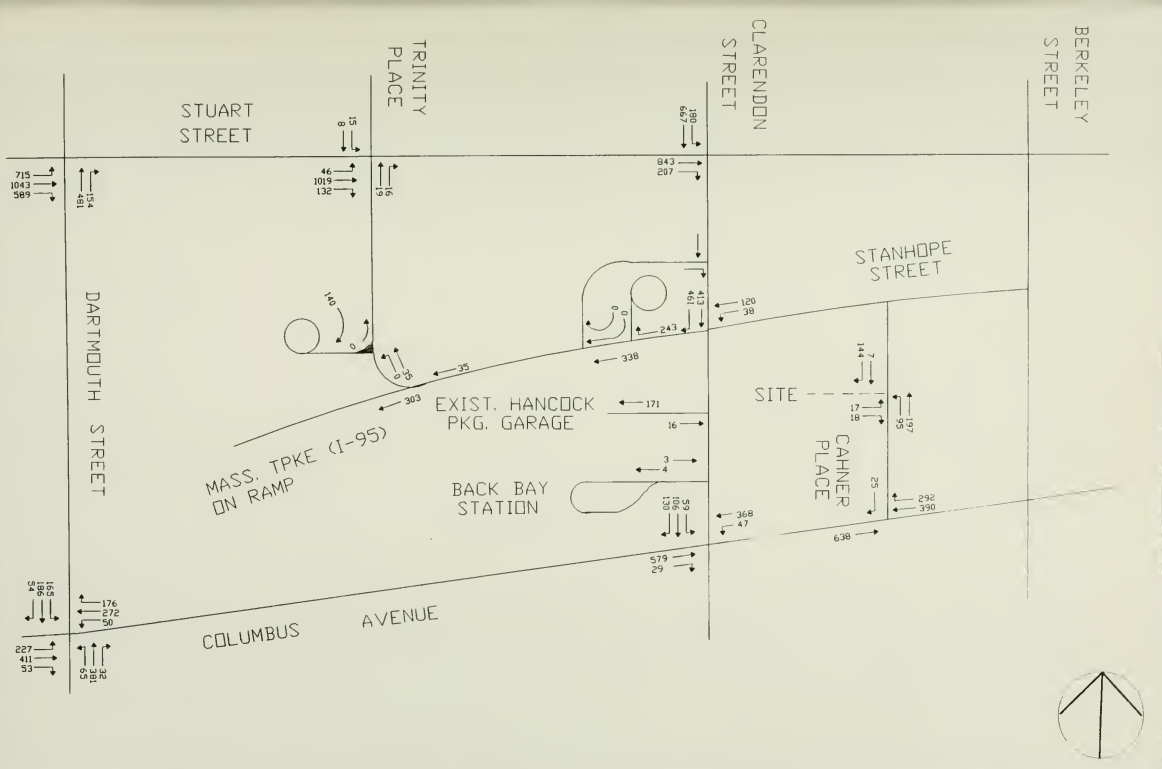


FIGURE NO. 13

1991 FUTURE BUILD TRAFFIC VOLMES WITHOUT OVERPASS AM PEAK HOUR

HMM ASSOCIATES INC.

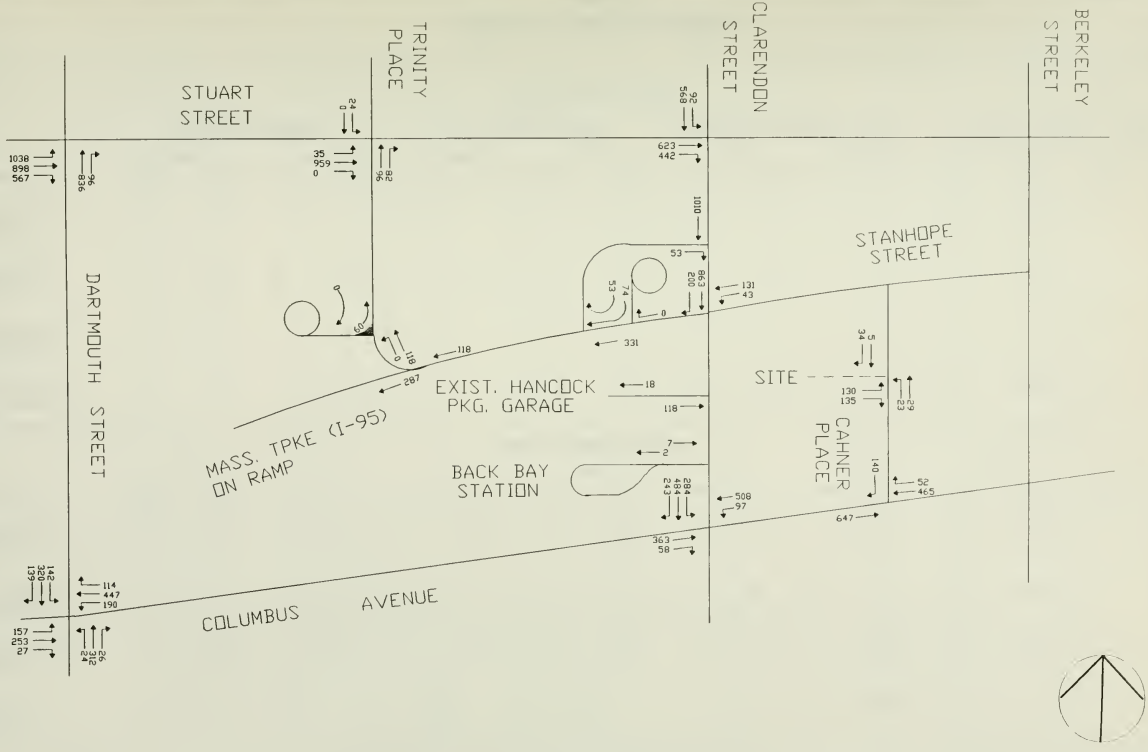


FIGURE NO. 14

1991 FUTURE BUILD TRAFFIC VOLUMES WITHOUT OVERPASS PM PEAK HOUR

HMM ASSOCIATES INC.

TABLE 9

1991 BUILD LEVEL OF SERVICE SUMMARY

SIGNALIZED LOCATIONS

Intersection	1988 Existing Conditions				1991 No-Build Conditions				1991 Build Conditions w/o Overpass				1991 Build Conditions w/ Overpass			
	AM		PM		AM		PM		AM		PM		AM		PM	
	LOS[1]	Delay[4]	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
Stuart St. & Dartmouth St.	B	8.6	B	9.3	B	9.1	B	11.0	B	9.9	B	11.7	B	9.5	B	11.7
Stuart St. & Clarendon St.	C	15.5	B	12.4	C	18.3	C	16.6	C	18.7	C	17.1	C	19.2	C	17.0
Columbus Ave. & Clarendon St.	B	8.1	B	11.1	B	8.2	B	13.1	B	8.3	B	13.1	B	8.2	B	13.3
Columbus Ave. & Dartmouth St.	B	13.7	C	17.3	C	18.4	D	26.0	D	27.8	D	35.7	C	19.6	D	36.5

UNSIGNALIZED LOCATIONS

Intersection	AM		PM		AM		PM		AM		PM		AM		PM	
	LOS	R/C[2]	LOS	R/C	LOS	R/C	LOS	R/C	LOS	R/C	LOS	R/C	LOS	R/C	LOS	R/C
Stuart St. & Trinity Pl.	C	211	B	396	D	163	C	233	D	160	C	222	D	147	C	222
Stanhope St. & Clarendon St.	C	267	B	395	C	221	C	217	D	196	E[3]	75	D	189	D	170
Columbus Ave. & Cahner Pl.	A	905	A	857	A	877	A	843	A	859	A	706	A	859	A	751
Cahner Pl. & Site Dr.	N/A		N/A		N/A		N/A		A	529	A	708	A	612	A	823

1 LOS = Level of Service.
2 R/C = Reserve Capacity (Vehicle per hour).
3 Small delay is expected on minor approach.
4 Delay measured in seconds.

2689-2/TRAN/685

From a traffic operations standpoint, alone, the Clarendon Street vehicular overpass may not be warranted. Several benefits that this vehicular overpass would offer from a general circulation and parking management standpoint include:

(1) The vehicular overpass offers direct access to the Massachusetts Turnpike westbound, without traversing local streets;

(2) The overpass offers an alterative access point to the Cahner Place access. Without the overpass, only one garage access/egress is provided.

4.7 Parking Implications of Proposed Project

The proposed Hancock Garage and Office Complex will include a total of 521 new parking spaces. A detailed site parking demand and parking space allocation have been completed and are summarized in the following paragraphs.

Although the Institute of Transportation Engineers and the Urban Land Institute have established valuable statistical parking generation data for various land uses, this data cannot be directly utilized for projects in the Back Bay area. However, several previous comprehensive transportation studies in the area have revealed the mode split factor, trip generation, automobile occupancy, and transit ridership discussed in the previous sections. These factors were utilized to estimate the proposed project parking demand and space usage allocations for the proposed project.

According to the information from the U.S. Post Office, an estimated 246 employees will enter the Hancock Garage and Office Complex. As summarized in the previous sections, the automobile modal split factor will be .45, and vehicle occupancy will be 1.4 persons per vehicle. Applying these factors to the total number of employees, it was calculated that 79 parking spaces are required for Post Office employee long term parking use. Also from the same data source, there will be 3,405 daily visitor trips to the Post Office. Assuming a turnover rate of 10, a mode split of 20% and an auto occupancy of 1.6, the calculated number of visitor short term spaces is 42.

Similarly, applying the trip generation rate, modal split factor and vehicle occupancy rate to the office and retail usage in the proposed project, it is estimated that 55 long term and 20 short term parking spaces are required for the office employees and visitors, and 2 long term and 4 short term spaces are required for the retail employees and customer.

Currently, a small long term parking lot is located at the project site which totals 52 spaces. Therefore, when the parking garage is completed, these 52 existing spaces should be replaced within the garage.

The primary objective of this proposed project is to provide some additional long term parking for either the John Hancock Building or adjacent office buildings, and not to attract new parking demand which will increase auto trips in the area. Table 10 presents the Estimated Peak Parking Demand and Allocation.

TABLE 10
ESTIMATED PEAK PARKING DEMAND AND ALLOCATION

Land Use	Demand		Allocation (Total)
	Long Term	Short Term	
Post Office	79	42	121
Office	55	20	75
Retail	2	4	6
Replace Existing Lot	0	52	52
Monthly Pass*	267	0	267
TOTAL	403	118	521

* Excess of supply, versus demand for the proposed project. This excess supply could be used to meet expected parking deficits in the area.

FUTURE 2010 NO-BUILD TRAFFIC ANALYSIS

5. FUTURE 2010 NO-BUILD TRAFFIC ANALYSIS

5.1 Proposed Herald Street Extension Alternates P-3A and P-3B

HMM analyzed the traffic operations in 2010, which is the future design year for the proposed Herald Street/Marginal Street Extension. Bruce Campbell and Associates, Inc. is currently developing and evaluating the traffic volumes for several design alternates of the Herald Street Extension for the City of Boston, and this report utilized their latest 2010 PM peak hour volume projections for Alternate P-3. Alternate P-3A calls for construction of Herald Street (one way eastbound) from Clarendon Street to Arlington Street. Alternate P-3B calls for the same construction but Herald Street extends west to Columbus Avenue.

5.2 2010 No-Build Traffic Volumes (Herald Street Extension Alt. P-3A, P-3B)

In order to evaluate the impact of future non-project related traffic, volumes for a 2010 No-Build condition were collected from Bruce Campbell and Associates, Inc. The PM peak hour turning movements at the Clarendon Street/Columbus Avenue intersection were adjusted to account for the Herald Street vehicle attractions. The 2010 No-Build PM peak hour volumes (Alt. P-3A, P-3B) are shown in Figures 15 and 16.

5.3 2010 No-Build Traffic Operations (Herald Street Extension Alt. P-3A, P-3B)

Using the traffic volumes presented in Figures 15 and 16, an analysis of the PM peak hour operations was conducted. The results of this analysis are shown in Table 11. The results show that the proposed Herald Street Extension will divert and attract trips to eastbound Mass. Pike. Four (4) locations will operate at LOS B, and the Marginal/Arlington Street intersection will operate at LOS D, and the Herald/Arlington Street intersection will also operate at LOS D.

Conceptual 1" = 20' scale plans of alternates P-3A and P-3B are shown in the appendix. These plans show the proposed lane widths, curb radii, signing and pavement markings, and signal head locations for both alternates.

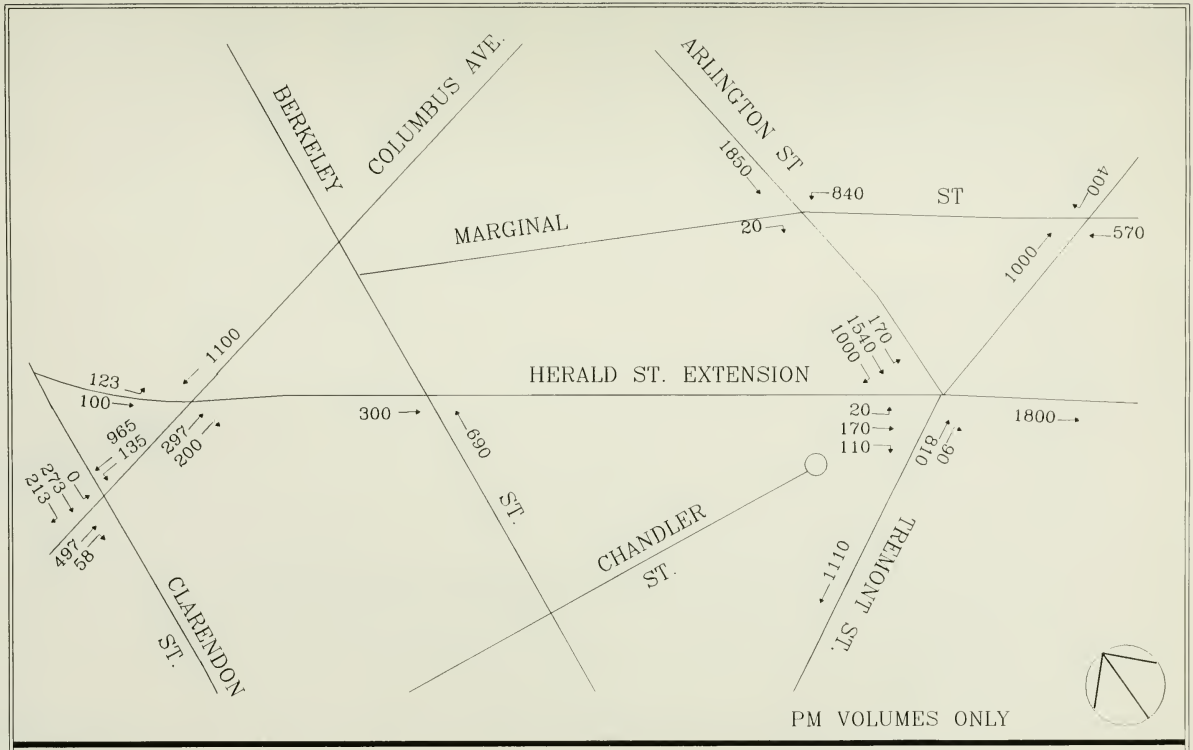


FIGURE NO.15

2010 FUTURE NO-BUILD
TRAFFIC VOLUMES
(WITH HERALD ST. EXT.,ALT P-3A)

HMM ASSOCIATES INC.

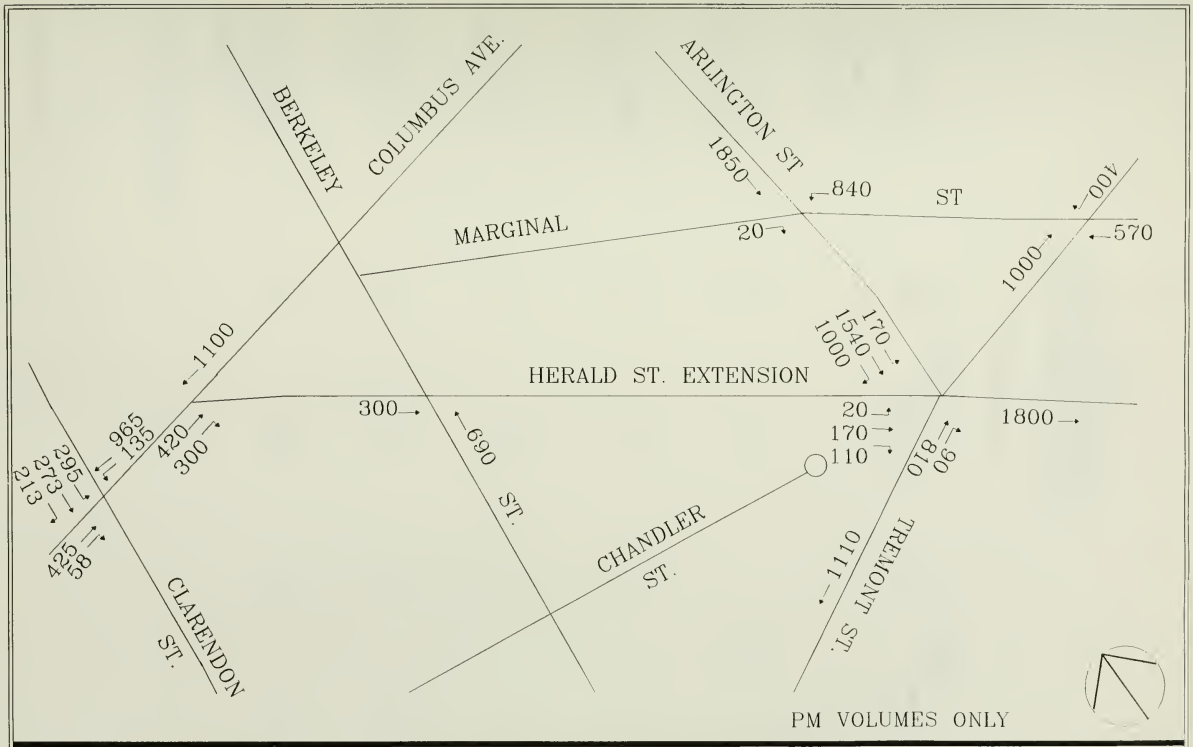


FIGURE NO.16

2010 FUTURE NO-BUILD
TRAFFIC VOLUMES
(WITH HERALD ST. EXT., ALT P-3B)

HMM ASSOCIATES INC.

TABLE 11
2010 NO-BUILD CONDITIONS
LEVEL OF SERVICE SUMMARY

PM Peak Hour

Intersection	P3-A LOS*	P3-A Delay (sec)	P3-B LOS	P3-B Delay (sec)
Clarendon St. & Columbus Ave.	B	12.6	B	13.8
Columbus St. & Herald St. Ext.	B	9.6	- N/A -	
Herald St. Ext. & Berkeley St.	B	11.6	B	11.6
Tremont St. & Marginal St.	B	14.9	B	14.9
Arlington St. & Marginal St.	D	25.1	D	25.1
Herald St. Ext. & Arlington St. & Tremont St.	D	29.4	D	29.4

* LOS = Level of Service

FUTURE 2010 BUILD TRAFFIC ANALYSIS

6. FUTURE 2010 BUILD TRAFFIC ANALYSIS

6.1 Traffic Impacts of Proposed Project

The generated vehicle trips for the proposed Hancock Garage and Office Complex, along with the trip distributions remain unchanged as compared to Sections 4.4 and 4.5. It is estimated that approximately 20% of the site traffic will utilize the Herald Street Extension (Alternates P-3A and P-3B).

6.2 2010 Build Traffic Volumes (with Herald Street Extension, Alt. P-3A, P-3B)

The Build Condition analysis assumes that the proposed Clarendon St. overpass connection is not in place. Separate traffic assignments were made for Alternate P-3A (Herald Street Extended to Clarendon St.) and Alternate P-3B (Herald Street Extended to Columbus Avenue), and these PM peak hour traffic flows are shown on Figures 17 and 18.

6.3 2010 Build Traffic Operations (with Herald Street Extension Alternates P-3A, P-3B)

The PM peak hour traffic volumes associated with the proposed project were added to the 2010 No-Build flows, and assigned to the Alternate P-3A and Alternate P-3B roadway networks. The results of our analysis are shown in Table 12. Project related trips account for a 53 vph increase in PM peak hour traffic volumes on Herald Street. The additional trips generated by the proposed development will not change the LOS for any location for Alternate P-3A (Herald St. Extended to Clarendon St.). The additional trips generated by the proposed development results in the LOS at Clarendon Street and Columbus Avenue to fall from LOS B to C. All other locations studied remain unchanged.

From a traffic operations standpoint the projected AM/PM LOS for either Herald Street option (Alt. P-3A, P-3B) is B/C except for the Herald/Tremont, Arlington Street intersection. This location's LOS is D, and will constrain operations along the corridor. This LOS is expected due to the proposed 3 phase signal at the 5-leg intersection.

From a traffic operations standpoint the projected AM/PM LOS will be "C" or better at four locations. The projected AM/PM LOS at Arlington Street and Marginal Street, and Herald Street at Arlington Street will be "D". All operations along Herald Street will be constrained due to the proposed 3 phase signal at the 5-leg intersection at Herald Street and Arlington Street.

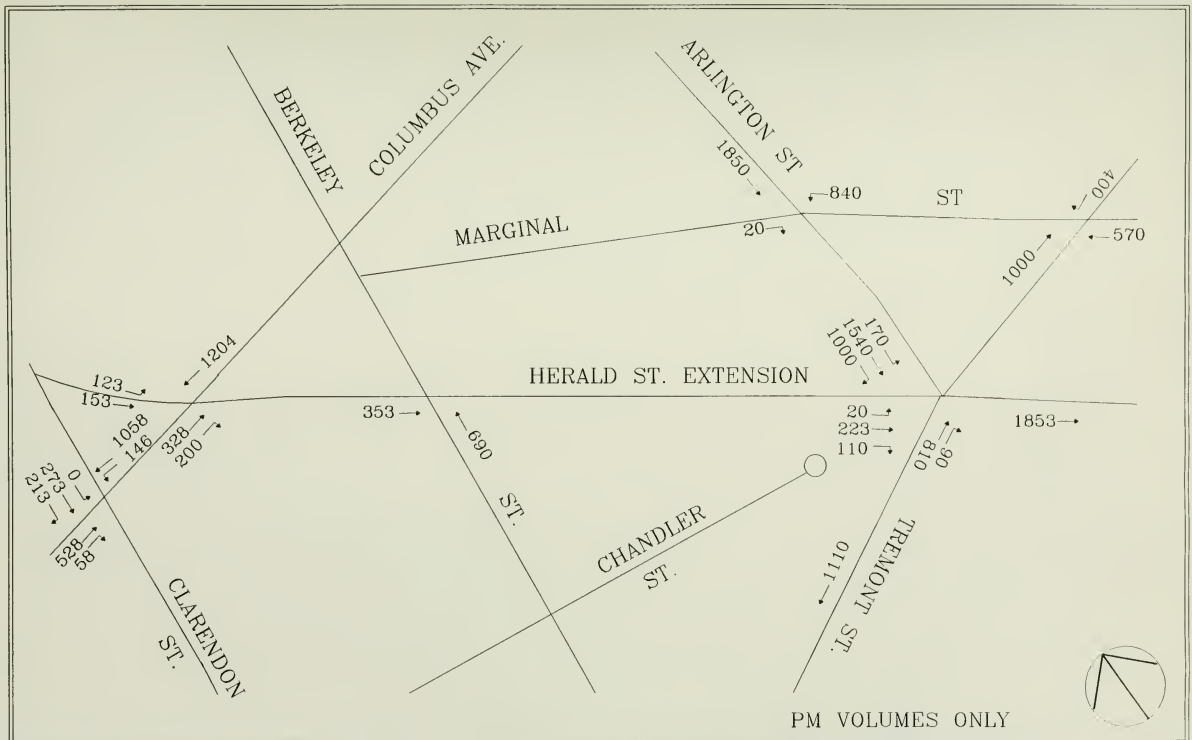


FIGURE NO.17

2010 FUTURE BUILD
TRAFFIC VOLUMES
(WITH HERALD ST. EXT., ALT P-3A)

HMM ASSOCIATES INC.

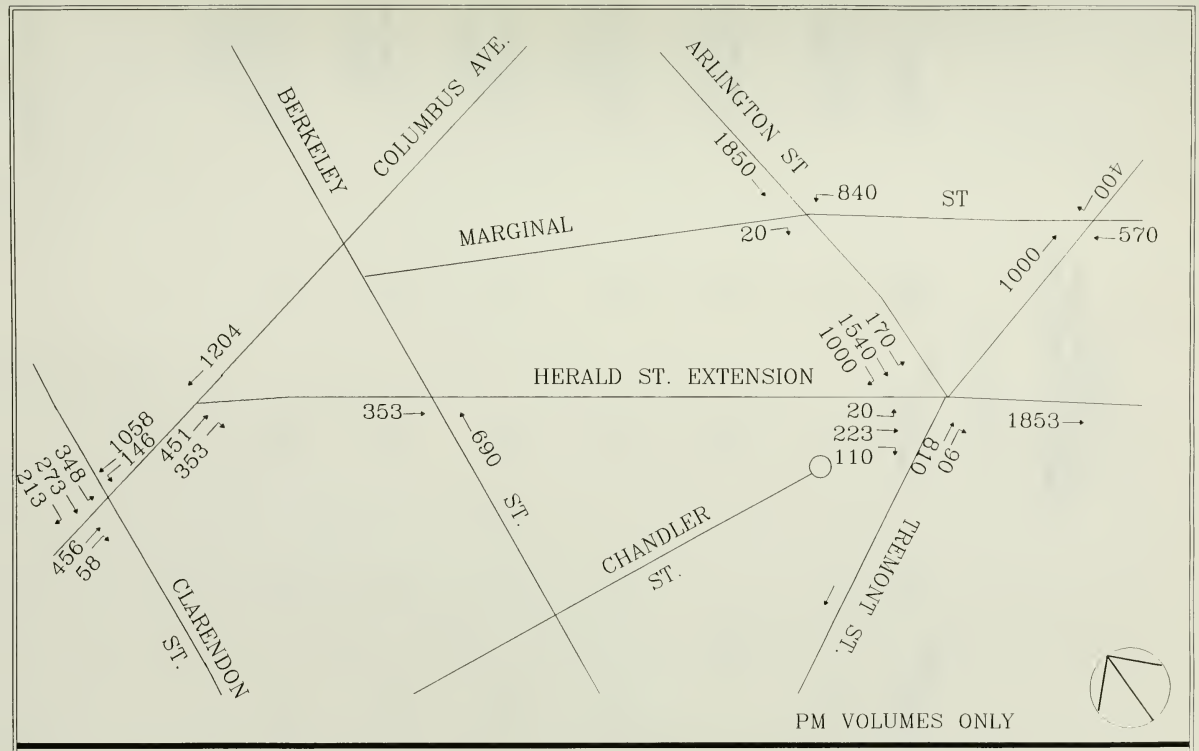


FIGURE NO.18

2010 FUTURE BUILD
TRAFFIC VOLUMES
(WITH HERALD ST. EXT.,P-3B)

HMM ASSOCIATES INC.

TABLE 12
2010 BUILD CONDITIONS
LEVEL OF SERVICE SUMMARY

PM Peak Hour

Intersection	P3-A LOS*	P3-A Delay (sec)	P3-B LOS	P3-B Delay (sec)
Clarendon St. & Columbus Ave.	C	15.3	C	15.8
Columbus St. & Herald St. Ext.	B	10.5	- N/A -	
Herald St. Ext. & Berkeley St.	B	12.1	B	12.1
Tremont St. & Marginal St.	B	14.9	B	14.9
Arlington St. & Marginal St.	D	25.1	D	25.1
Herald St. Ext. & Arlington St. & Tremont St.	D	29.9	D	29.9

1991 AND 2010 MITIGATION MEASURES

7. MITIGATION MEASURES

7.1 Site Access

The site plan as proposed contains an optional connecting bridge between the existing John Hancock Garage and the proposed Hancock Garage and Office Complex. Table 13 shows that there is no difference in level of service for the "Build With Overpass" vs. the "Build Without Overpass" scenarios. We do suggest that the connection be constructed so that pedestrian-vehicle conflicts at the Stanhope-Clarendon intersection are reduced. This location displays substantial pedestrian traffic crossing the entrance to the Massachusetts Turnpike westbound.

It is proposed that Cahner Place remain a two-way facility and that Stanhope Street remain one-way, westbound. The two-way Cahner Place Street is preferred in order that alternative egress options are available, allowing additional dispersion of project traffic.

7.2 Mitigating Road Improvements for 1991 Build Conditions

None of the intersections studied displayed inadequate levels of service, therefore no roadway improvements are recommended at the locations studied. We do, however, suggest that the future signal timing be reviewed and revised to provide for maximum optimization.

7.3 Mitigating Road Improvements for the 2010 Build Condition

All of the intersections studied operated at level of service D (or better) for the two-network alternates for either the No-Build or Build condition. The projected No-Build PM peak hour volume of 300 vph on Herald Street indicates that the roadway section need be only 16-24 feet wide from Columbus Avenue to a point 200 feet west of Arlington Street whereby Herald Street should be widened to two lanes. Previous plans show Herald Street as a two and three lane roadway for its entirety.

7.4 Traffic Reduction Measures

Reducing the amount of trips generated by office employees is an effective approach to traffic mitigation. Much can be done to reduce automobile usage and thereby lessen the need for improvements, or provide for the more efficient use of any improvements provided. The following describes measures designed to reduce the number of vehicle trips into the project area.

7.4.1 Ridesharing

Ridesharing refers to encouraging commuters to ride in vehicles with other commuters rather than driving to work alone. The most common forms of ridesharing are carpools and vanpools. Increased ridesharing means fewer vehicles will be using the roadways, with the result that there will be less congestion. An additional benefit will be reduced fuel consumption, as fewer vehicle miles will be traveled.

Carpooling and vanpooling programs are best implemented at the company level with a designated administrator to oversee the program. The John Hancock Properties, Inc. currently subsidizes a vanpool program and has allocated 53 spaces in their existing garage to vanpool use, 32 of these spaces were currently in use at the time of this study. The following incentives are given to employees:

1. Provision of on-site carpool/vanpool matching programs.

2. Participation in joint programs with other nearby tenants, organizations, and companies.

3. Provision of promotional materials on ridesharing to employees.

4. Inclusion of promotional information on ridesharing in a building newsletter for tenants, which will provide flexibility in disseminating information and aid in matching potential poolers.

5. Coordination with Caravan (an organization which leases commuter vans and provides administrative and organizational assistance) or other van leasing programs.

7.4.2 Mass Transit Diversion

Another major way to reduce the number of vehicles generated by the site on the roadways is to encourage employees to use mass transit instead of driving to work. Consideration should be given to the following measures to encourage transit usage:

1. Provision of an on-site location or payroll deduction mechanism for sale of MBTA passes and private bus line tickets.

2. Encouragement of tenants to subsidize a portion of their employees' public transportation costs.

3. Provision of promotional and informational materials for all forms of public transportation.

7.4.3 Work Schedule Adjustments

Alternative work schedules offer a way to reduce peak hour demands on the roadway system and on transit systems by shifting travel to non-peak hour periods or by reducing the total amount of travel per week. The major alternatives are:

1. Staggered work hours - Groups of employees are assigned staggered starting times, typically at 15-minute intervals, spread over a one or two-hour period.

2. Flexible work hours - Employees choose their own starting and finishing times, as long as they are present during a central part of the day (called core time).

3. Compressed work weeks - Involves shifting some workers from a standard five days per week, eight hours per day schedule to fewer days of longer hours (e.g., four day per week, ten hours per day).

Consideration should be given to flexible work hours for the proposed project.

1. Establishment of a flex-time system with building tenants requiring a core time of 9:00 AM to 4:00 PM.

2. Encouragement of all tenants to do the same during the lease negotiation process.

7.5 Parking Supply Management

The development's parking supply should be managed to encourage reduced peak hour traffic. Measures which would accomplish this include:

1. Provision of vanpool parking spaces for project tenants;

2. Preferential treatment for carpool and vanpool vehicles in site access and priority parking spaces;

3. Placing restrictions on use of the project's available public parking supply so as to promote short-term use by visitors;

4. Provision of sufficient off-street loading/unloading space (two bays) for all delivery vehicles, including bicycle messengers, to minimize the amount of this activity on-street;

5. Encouragement of all tenant delivery vehicles (with the exception of courier services) to use off-peak hours, which include all times other than 7:00-10:00 AM and 3:00-6:00 PM weekdays.

Since the proposed project is an extension of the existing John Hancock Parking Garage, the existing parking management system should be applied to the future expansion garage.

In addition, a High-Occupancy-Vehicle parking priority should be considered in the future parking management system. A certain number of spaces may be defined as HOV priority spaces, which may eventually reduce auto trips on site and provide more parking supply to meet the long term parking demand.

FUTURE CITY
REVIEW PROCESS

8. FUTURE CITY REVIEW PROCESS

A Project Notification Form (PNF) must be initially filed with the Boston Redevelopment Authority outlining the proposal's transportation impacts within the immediate project area and, to the extent applicable, identifying larger area impacts. Within 30 days of this filing, the BRA will issue its overall scoping determination for the project including the Transportation Access Plan. The scoping will be the result of collaboration between the BRA and the Boston Transportation department (BTP). Article 31 provides that BTP may, within 20 days of the applicant's PNF submission to the Authority, transmit in writing a recommended Scoping Determination for the Transportation Component which shall be incorporated into the BRA's Scoping Determination.

Following submission of the Draft Project Impact Report, BTP and the Authority collaborates, within 45 days of such submission being publicly noticed, on the issuing of a Preliminary Adequacy Determination. This same procedure also relates to the filing of a Final Project Impact Report (FPIR) which requires the BRA to provide for a Final Adequacy Determination within 45 days of the FPIR submission.

The BRA may extend the time periods dictated in Article 31 for issuing a Scoping Determination, Preliminary Adequacy Determination, or Final Adequacy Determination, if additional time is deemed necessary. Only one extension is possible, and this extension must not exceed 30 days.

Overall, the developer and its consultants will work closely with BRA and BTP staffs to insure that the Transportation Component meets all City requirements and is found to be in compliance with the requirements of Article 31.

APPENDIX A

EXISTING CONDITION CAPACITY ANALYSIS

INTERSECTION :
STUART ST. @
DARTMOUTH ST.
WEEKDAY AM PEAK HOUR 1988 EXISTING CBD?Y
ACTUATED SIGNAL

TRAFFIC & ROADWAY CONDITIONS

APP	GRADE (%)	HV (%)	ADJ. PKG Y/N	LN. Nm	BUSES (Nb)	PHF	CONF. PEDS (peds/hr)	PED BUTTON Y/N	SEC	ARR TYPE
EB	0	2	N	0	0	0.90	0	Y	18.0	3
WB	0	0	N	0	0	0.90	0	Y	14.2	3
NB	0	2	N	0	0	0.90	0	Y	16.5	3
SB	0	0	N	0	0	0.90	0	Y	21.0	3

GEOMETRICS / VOLUMES

APP	VOLUME LT	TH	RT	LANE GROUPS 1 MVM	LNS	WD	2 MVM	LNS	WD	3 MVM	LNS	WD
EB	657	935	471	L	1	32.0	TR	3	30.0	R	1	10.0
WB	0	0	0									
NB	0	459	124	T	1	15.0	TR	1	15.0			
SB	0	0	0									

SIGNAL PHASING

APP	PHASE	1ST MV	2ND MV	3RD MV	PROT	PMSV	G	Y+R
EB	1	TR	R		R		55	45
EB	8	L			L		100	0
NB	2	T	TR		R		39	61

HANCOCK DEVELOPMENT CA-1A

INTERSECTION :
STUART ST. @
DARTMOUTH ST.
WEEKDAY AM PEAK HOUR 1988 EXISTING CBD ? Y
ACTUATED SIGNAL

V O L U M E A D J U S T M E N T

APPROACH	LANE GROUP MVM	VOLUME	FLOW RATE IN GROUP	LANE UTIL FACTOR	ADJ FLOW RATE	PROP OF TURNS LT	RT
EB	L	657	730	1.00	730	1.00	0.00
	TR	958	1064	1.00	1064	0.00	0.02
	R	448	498	1.00	498	0.00	1.00
WB							
NB	T	310	344	1.00	344	0.00	0.00
	TR	273	303	1.00	303	0.00	0.45
SB							

S A T U R A T I O N F L O W

APP	MVM	IDEAL SAT FLOW	# OF LANES	ADJUSTMENT FACTORS WIDTH	H.V.	GRADE	PARK	BUS	AREA	RT	LT	ADJ. FLOW
EB	L	1800	1	1.66	0.99	1.00	1.00	1.00	0.90	1.00	0.95	2529
	TR	1800	3	0.94	0.99	1.00	1.00	1.00	0.90	1.00	1.00	4509
	R	1800	1	0.94	0.99	1.00	1.00	1.00	0.90	0.85	1.00	1281
WB												
NB	T	1800	1	1.10	0.99	1.00	1.00	1.00	0.90	1.00	1.00	1764
	TR	1800	1	1.10	0.99	1.00	1.00	1.00	0.90	0.93	1.00	1645
SB												

HANCOCK DEVELOPMENT CA-1A

INTERSECTION :
STUART ST. @
DARTMOUTH ST.
WEEKDAY AM PEAK HOUR 1988 EXISTING CBD ? Y
ACTUATED SIGNAL

C A P A C I T Y A N A L Y S I S

APP	LN GR MVM	ADJ FLOW RATE	PMSV LT FLOW	ADJ SAT FLW RT	FLOW RATIO	CRIT ?	GREEN RATIO	LN GR CAPACITY	V/C RATIO
EB	L	730	0	2529	0.289	N	1.000	2529	0.289
	TR	1064	0	4509	0.236	N	0.550	2480	0.429
	R	498	0	1281	0.389	Y	0.550	705	0.706
WB									
NB	T	344	0	1764	0.195	Y	0.390	688	0.500
	TR	303	0	1645	0.184	N	0.390	642	0.472
SB									

CYCLE LENGTH : 100.0 SUM OF CRITICAL LANES' FLOW RATIOS : 0.584
LOSS TIME PER CYCLE : 6 INTERSECTION V/C : 0.621

L E V E L O F S E R V I C E

APP	LN GR MVM	V/C RATIO	GREEN RATIO	CYC LEN	1st DELAY	LN GR CAP	2nd DELAY	PF	LN GR DELAY	LN GR LOS	APP DELAY	APP LOS
EB	L	0.289	1.000	100	0.0	2529	0.0	1.00	0.0	A		
	TR	0.429	0.550	100	10.1	2480	0.1	0.85	8.7	B		
	R	0.706	0.550	100	12.6	705	2.2	0.85	12.6	B	6.8	B
WB												
NB	T	0.500	0.390	100	17.6	688	0.5	0.85	15.4	C		
	TR	0.472	0.390	100	17.3	642	0.4	0.85	15.0	B	15.2	C
SB												

INTERSECTION DELAY : 8.6 secs/veh
LEVEL OF SERVICE : B

INTERSECTION :
STUART ST. @
DARTMOUTH ST.
WEEKDAY PM PEAK HOUR 1988 EXISTING CBD?Y
ACTUATED SIGNAL

T R A F F I C & R O A D W A Y C O N D I T I O N S

APP	GRADE (%)	HV (%)	ADJ. PKG Y/N	LN. Nm	BUSES (Nb)	PHF	CONF. PEDS (peds/hr)	PED BUTTON Y/N	SEC	ARR TYPE
EB	0	0	N	0	0	0.90	0	Y	18.0	3
WB	0	0	N	0	0	0.90	0	Y	14.2	3
NB	0	3	N	0	0	0.90	0	Y	16.5	3
SB	0	0	N	0	0	0.90	0	Y	21.0	3

G E O M E T R I C S / V O L U M E S

	VOLUME			LANE GROUPS 1			2			3		
APP	LT	TH	RT	MVM	LNS	WD	MVM	LNS	WD	MVM	LNS	WD
EB	676	596	445	L	1	32.0	TR	3	30.0	R	1	10.0
WB	0	0	0									
NB	0	704	96	T	1	15.0	TR	1	15.0			
SB	0	0	0									

S I G N A L P H A S I N G

APP	PHASE	1ST MV	2ND MV	3RD MV	PROT	PMSV	G	Y+R
EB	1	TR	R		R		50	50
EB	8	L			L		100	0
NB	2	T	TR		R		44	56

HANCOCK DEVELOPMENT CA-1B

INTERSECTION :
STUART ST. @
DARTMOUTH ST.
WEEKDAY PM PEAK HOUR 1988 EXISTING CBD ? Y
ACTUATED SIGNAL

V O L U M E A D J U S T M E N T

APPROACH	LANE GROUP MVM	VOLUME	FLOW RATE IN GROUP	LANE UTIL FACTOR	ADJ FLOW RATE	PROP OF TURNS LT	RT
EB	L	676	751	1.00	751	1.00	0.00
	TR	635	706	1.00	706	0.00	0.06
	R	406	451	1.00	451	0.00	1.00
WB							
NB	T	400	444	1.00	444	0.00	0.00
	TR	400	444	1.00	444	0.00	0.24
SB							

S A T U R A T I O N F L O W

APP	MVM	IDEAL SAT FLOW	# OF LANES	ADJUSTMENT FACTORS WIDTH	H.V.	GRADE	PARK	BUS	AREA	RT	LT	ADJ. FLOW
EB	L	1800	1	1.66	1.00	1.00	1.00	1.00	0.90	1.00	0.95	2555
	TR	1800	3	0.94	1.00	1.00	1.00	1.00	0.90	0.99	1.00	4527
	R	1800	1	0.94	1.00	1.00	1.00	1.00	0.90	0.85	1.00	1294
WB												
NB	T	1800	1	1.10	0.99	1.00	1.00	1.00	0.90	1.00	1.00	1764
	TR	1800	1	1.10	0.99	1.00	1.00	1.00	0.90	0.96	1.00	1701
SB												

HANCOCK DEVELOPMENT CA-1B

INTERSECTION :
STUART ST. @
DARTMOUTH ST.
WEEKDAY PM PEAK HOUR 1988 EXISTING CBD ? Y
ACTUATED SIGNAL

C A P A C I T Y A N A L Y S I S

APP	LN GR MVM	ADJ FLOW RATE	PMSV LT FLOW	ADJ SAT FLW RT	FLOW RATIO	CRIT ?	GREEN RATIO	LN GR CAPACITY	V/C RATIO
EB	L	751	0	2555	0.294	N	1.000	2555	0.294
	TR	706	0	4527	0.156	N	0.500	2263	0.312
	R	451	0	1294	0.349	Y	0.500	647	0.697
WB									
NB	T	444	0	1764	0.252	N	0.440	776	0.572
	TR	444	0	1701	0.261	Y	0.440	748	0.594
SB									

CYCLE LENGTH : 100.0 SUM OF CRITICAL LANES' FLOW RATIOS : 0.610
LOSS TIME PER CYCLE : 6 INTERSECTION V/C : 0.649

L E V E L O F S E R V I C E

APP	LN GR MVM	V/C RATIO	GREEN RATIO	CYC LEN	1st DELAY	LN GR CAP	2nd DELAY	PF	LN GR DELAY	LN GR LOS	APP DELAY	APP LOS
EB	L	0.294	1.000	100	0.0	2555	0.0	1.00	0.0	A		
	TR	0.312	0.500	100	11.3	2263	0.0	0.85	9.6	B		
	R	0.697	0.500	100	14.6	647	2.3	0.85	14.4	B	7.0	B
WB												
NB	T	0.572	0.440	100	15.9	776	0.8	0.85	14.2	B		
	TR	0.594	0.440	100	16.1	748	0.9	0.85	14.4	B	14.3	B
SB												

INTERSECTION DELAY : 9.3 secs/veh
LEVEL OF SERVICE : B

INTERSECTION :
STUART ST. @
TRINITY PLACE
WEEKDAY AM PEAK HOUR 1988 EXISTING CBD?Y
UNSIGNALIZED
- MAJOR STREET RUNS EAST / WEST

T R A F F I C & R O A D W A Y C O N D I T I O N S

APP	GRADE (%)	HV (%)	ADJ. PKG Y/N	LN. Nm	BUSES (Nb)	PHF	CONF. PEDS (peds/hr)	PED Y/N	BUTTON SEC	ARR TYPE
EB	0	2	N	0	0	0.89	0	N	0.0	3
WB	0	0	N	0	0	0.90	0	N	0.0	3
NB	0	0	N	0	0	0.94	0	N	0.0	3
SB	0	0	N	0	0	0.90	0	N	0.0	3

G E O M E T R I C S / V O L U M E S

APP	VOLUME LT	TH	RT	LANE GROUPS 1 MVM	LNS	WD	2 MVM	LNS	WD	3 MVM	LNS	WD
EB	46	881	132	LTR	3	30.0						
WB	0	0	0									
NB	0	17	11	TR	1	12.0						
SB	15	8	0	LT	1	12.0						

INTERSECTION :
STUART ST. @
TRINITY PLACE
WEEKDAY AM PEAK HOUR 1988 EXISTING CBD?Y
UNSIGNALIZED
- MAJOR STREET RUNS EAST / WEST

U N S I G N A L I Z E D C R I T I C A L G A P S

APP	CRITICAL GAPS (SEC) LEFT TURN	THROUGH	RIGHT TURN
EB	5.00	---	---
WB	5.00	---	---
NB	6.50	6.00	5.50
SB	6.50	6.00	5.50

V O L U M E A L L O C A T I O N T O L A N E S

APP	LANE 1 L	T	R	LANE 2 L	T	R	LANE 3 L	T	R
EB	46	301	0	0	356	0	0	224	132
WB	0	0	0	0	0	0	0	0	0
NB	0	17	11	0	0	0	0	0	0
SB	15	8	0	0	0	0	0	0	0

U N S I G N A L I Z E D

APP		LANE 1	LANE 2	LANE 3
EB	RESERVE CAPACITY	1153	---	---
	LEVEL OF SERVICE	A		
WB	RESERVE CAPACITY	---	---	---
	LEVEL OF SERVICE			
NB	RESERVE CAPACITY	332	---	---
	LEVEL OF SERVICE	B		
SB	RESERVE CAPACITY	211	---	---
	LEVEL OF SERVICE	C		

MAJOR STREET - EB/WB

INTERSECTION :
STUART ST. @
TRINITY PLACE
WEEKDAY PM PEAK HOUR 1988 EXISTING CBD?Y
UNSIGNALIZED
- MAJOR STREET RUNS EAST / WEST

T R A F F I C & R O A D W A Y C O N D I T I O N S

APP	GRADE (%)	HV (%)	ADJ. PKG LN. Y/N	Nm	BUSES (Nb)	PHF	CONF. PEDS (peds/hr)	PED BUTTON Y/N	SEC	ARR TYPE
EB	0	5	N	0	0	0.89	0	N	0.0	3
WB	0	0	N	0	0	0.90	0	N	0.0	3
NB	0	0	N	0	0	0.94	0	N	0.0	3
SB	0	3	N	0	0	0.90	0	N	0.0	3

G E O M E T R I C S / V O L U M E S

APP	VOLUME LT	TH	RT	1 MVM	LNS	WD	2 MVM	LNS	WD	3 MVM	LNS	WD
EB	35	657	0	TR	3	30.0						
WB	0	0	0									
NB	0	83	39	TR	1	12.0						
SB	24	0	0	TR	1	12.0						

INTERSECTION :
STUART ST. @
TRINITY PLACE
WEEKDAY PM PEAK HOUR 1988 EXISTING CBD?Y
UNSIGNALIZED
- MAJOR STREET RUNS EAST / WEST

U N S I G N A L I Z E D C R I T I C A L G A P S

APP	CRITICAL GAPS (SEC) LEFT TURN	THROUGH	RIGHT TURN
EB	5.00	---	---
WB	5.00	---	---
NB	6.50	6.00	5.50
SB	6.50	6.00	5.50

V O L U M E A L L O C A T I O N T O L A N E S

APP	LANE 1 L	T	R	LANE 2 L	T	R	LANE 3 L	T	R
EB	0	219	0	0	219	0	0	219	0
WB	0	0	0	0	0	0	0	0	0
NB	0	83	39	0	0	0	0	0	0
SB	0	0	0	0	0	0	0	0	0

U N S I G N A L I Z E D

APP		LANE 1	LANE 2	LANE 3
EB	RESERVE CAPACITY	---	---	---
	LEVEL OF SERVICE			
WB	RESERVE CAPACITY	---	---	---
	LEVEL OF SERVICE			
NB	RESERVE CAPACITY	396	---	---
	LEVEL OF SERVICE	B		
SB	RESERVE CAPACITY	---	---	---
	LEVEL OF SERVICE			

MAJOR STREET - EB/WB

INTERSECTION :
STUART ST. @
CLARENDON ST.
WEEKDAY AM PEAK HOUR 1988 EXISTING CBD?Y
ACTUATED SIGNAL

T R A F F I C & R O A D W A Y C O N D I T I O N S

APP	GRADE (%)	HV (%)	ADJ. PKG Y/N	LN. Nm	BUSES (Nb)	PHF	CONF. PEDS (peds/hr)	PED BUTTON Y/N	SEC	ARR TYPE
EB	0	5	Y	10	0	0.94	0	Y	12.5	3
WB	0	0	N	0	0	0.90	0	N	0.0	3
NB	0	0	N	0	0	0.90	0	N	0.0	3
SB	0	3	Y	10	0	0.83	0	Y	8.5	3

G E O M E T R I C S / V O L U M E S

APP	VOLUME LT	TH	RT	LANE GROUPS 1 MVM	LNS	WD	2 MVM	LNS	WD	3 MVM	LNS	WD
EB	0	710	197	T	1	13.0	TR	1	13.0			
WB	0	0	0									
NB	0	0	0									
SB	170	570	0	LT	1	11.0	T	1	11.0			

S I G N A L P H A S I N G

APP	PHASE	1ST MV	2ND MV	3RD MV	PROT	PMSV	G	Y+R
EB	1	T	TR		R		48	52
SB	2	LT	T		L		46	54

HANCOCK DEVELOPMENT CA-3A

INTERSECTION :
STUART ST. @
CLARENDON ST.
WEEKDAY AM PEAK HOUR 1988 EXISTING CBD ? Y
ACTUATED SIGNAL

V O L U M E A D J U S T M E N T

APPROACH	LANE GROUP MVM	VOLUME	FLOW RATE IN GROUP	LANE UTIL FACTOR	ADJ FLOW RATE	PROP OF TURNS LT	RT
EB	T	485	516	1.00	516	0.00	0.00
	TR	422	449	1.00	449	0.00	0.47
WB							
NB							
SB	LT	350	422	1.00	422	0.46	0.00
	T	390	470	1.00	470	0.00	0.00

S A T U R A T I O N F L O W

APP	MVM	IDEAL SAT FLOW	# OF LANES	ADJUSTMENT FACTORS WIDTH	H.V.	GRADE	PARK	BUS	AREA	RT	LT	ADJ. FLOW
EB	T	1800	1	1.03	0.98	1.00	1.00	1.00	0.90	1.00	1.00	1635
	TR	1800	1	1.03	0.98	1.00	0.85	1.00	0.90	0.93	1.00	1292
WB												
NB												
SB	LT	1800	1	0.97	0.99	1.00	1.00	1.00	0.90	1.00	0.93	1448
	T	1800	1	0.97	0.99	1.00	0.85	1.00	0.90	1.00	1.00	1322

HANCOCK DEVELOPMENT CA-3A

INTERSECTION :
STUART ST. @
CLARENDON ST.
WEEKDAY AM PEAK HOUR 1988 EXISTING CBD ? Y
ACTUATED SIGNAL

C A P A C I T Y A N A L Y S I S

APP	LN GR MVM	ADJ FLOW RATE	PMSV LT FLOW	ADJ SAT FLW RT	FLOW RATIO	CRIT ?	GREEN RATIO	LN GR CAPACITY	V/C RATIO
EB	T	516	0	1635	0.316	N	0.480	785	0.657
	TR	449	0	1292	0.348	Y	0.480	620	0.724
WB									
NB									
SB	LT	422	0	1448	0.291	N	0.460	666	0.634
	T	470	0	1322	0.356	Y	0.460	608	0.773

CYCLE LENGTH : 100.0 SUM OF CRITICAL LANES' FLOW RATIOS : 0.704
LOSS TIME PER CYCLE : 6 INTERSECTION V/C : 0.749

L E V E L O F S E R V I C E

APP	LN GR MVM	V/C RATIO	GREEN RATIO	CYC LEN	1st DELAY	LN GR CAP	2nd DELAY	PF	LN GR DELAY	LN GR LOS	APP DELAY	APP LOS
EB	T	0.657	0.480	100	15.0	785	1.4	0.85	13.9	B		
	TR	0.724	0.480	100	15.7	620	2.9	0.85	15.8	C	14.8	B
WB												
NB												
SB	LT	0.634	0.460	100	15.6	666	1.4	0.85	14.4	B		
	T	0.773	0.460	100	17.2	608	4.2	0.85	18.2	C	16.4	C

INTERSECTION DELAY : 15.5 secs/veh
LEVEL OF SERVICE : C

INTERSECTION :
STUART ST. @
CLARENDON ST.
WEEKDAY PM PEAK HOUR 1988 EXISTING CBD?Y
ACTUATED SIGNAL

T R A F F I C & R O A D W A Y C O N D I T I O N S

APP	GRADE (%)	HV (%)	ADJ. PKG Y/N	LN. Nm	BUSES (Nb)	PHF	CONF. PEDS (peds/hr)	PED BUTTON Y/N	SEC	ARR TYPE
EB	0	0	Y	10	0	0.94	0	Y	12.5	3
WB	0	0	N	0	0	0.90	0	N	0.0	3
NB	0	0	N	0	0	0.90	0	N	0.0	3
SB	0	0	Y	10	0	0.83	0	Y	8.5	3

G E O M E T R I C S / V O L U M E S

APP	VOLUME LT	TH	RT	LANE GROUPS 1 MVM	LNS	WD	2 MVM	LNS	WD	3 MVM	LNS	WD
EB	0	550	170	T	1	13.0	TR	1	13.0			
WB	0	0	0									
NB	0	0	0									
SB	92	431	0	LT	1	11.0	T	1	11.0			

S I G N A L P H A S I N G

APP	PHASE	1ST MV	2ND MV	3RD MV	PROT	PMSV	G	Y+R
EB	1	T	TR		R		48	5.2
SB	2	LT	T		L		46	5.4

HANCOCK DEVELOPMENT CA-3B

INTERSECTION :
STUART ST. @
CLARENDON ST.
WEEKDAY PM PEAK HOUR 1988 EXISTING CBD ? Y
ACTUATED SIGNAL

V O L U M E A D J U S T M E N T

APPROACH	LANE GROUP MVM	VOLUME	FLOW RATE IN GROUP	LANE UTIL FACTOR	ADJ FLOW RATE	PROP OF TURNS LT	RT
EB	T	410	436	1.00	436	0.00	0.00
	TR	310	330	1.00	330	0.00	0.55
WB							
NB							
SB	LT	237	286	1.00	286	0.39	0.00
	T	286	345	1.00	345	0.00	0.00

S A T U R A T I O N F L O W

APP	MVM	IDEAL SAT FLOW	# OF LANES	ADJUSTMENT FACTORS WIDTH	H.V.	GRADE	PARK	BUS	AREA	RT	LT	ADJ. FLOW
EB	T	1800	1	1.03	1.00	1.00	1.00	1.00	0.90	1.00	1.00	1669
	TR	1800	1	1.03	1.00	1.00	0.85	1.00	0.90	0.92	1.00	1301
WB												
NB												
SB	LT	1800	1	0.97	1.00	1.00	1.00	1.00	0.90	1.00	0.94	1479
	T	1800	1	0.97	1.00	1.00	0.85	1.00	0.90	1.00	1.00	1336

HANCOCK DEVELOPMENT CA-3B

INTERSECTION :
STUART ST. @
CLARENDON ST.
WEEKDAY PM PEAK HOUR 1988 EXISTING CBD ? Y
ACTUATED SIGNAL

C A P A C I T Y A N A L Y S I S

APP	LN GR MVM	ADJ FLOW RATE	PMSV LT FLOW	ADJ SAT FLW RT	FLOW RATIO	CRIT ?	GREEN RATIO	LN GR CAPACITY	V/C RATIO
EB	T	436	0	1669	0.261	Y	0.480	801	0.544
	TR	330	0	1301	0.254	N	0.480	624	0.529
WB									
NB									
SB	LT	286	0	1479	0.193	N	0.460	680	0.421
	T	345	0	1336	0.258	Y	0.460	615	0.561

CYCLE LENGTH : 100.0 SUM OF CRITICAL LANES' FLOW RATIOS : 0.519
LOSS TIME PER CYCLE : 6 INTERSECTION V/C : 0.552

L E V E L O F S E R V I C E

APP	LN GR MVM	V/C RATIO	GREEN RATIO	CYC LEN	1st DELAY	LN GR CAP	2nd DELAY	PF	LN GR DELAY	LN GR LOS	APP DELAY	APP LOS
EB	T	0.544	0.480	100	13.9	801	0.6	0.85	12.3	B		
	TR	0.529	0.480	100	13.8	624	0.7	0.85	12.3	B	12.3	B
WB												
NB												
SB	LT	0.421	0.460	100	13.7	680	0.3	0.85	11.9	B		
	T	0.561	0.460	100	14.9	615	0.9	0.85	13.4	B	12.7	B

INTERSECTION DELAY : 12.4 secs/veh
LEVEL OF SERVICE : B

INTERSECTION :
STANHOPE ST. @
CLARENDON ST.
WEEKDAY AM PEAK HOUR 1988 EXISTING CBD?Y
UNSIGNALIZED
- MAJOR STREET RUNS NORTH / SOUTH

T R A F F I C & R O A D W A Y C O N D I T I O N S

APP	GRADE (%)	HV (%)	ADJ. PKG LN. Y/N	ADJ. PKG LN. Nm	BUSES (Nb)	PHF	CONF. PEDS (peds/hr)	PED BUTTON Y/N	PED BUTTON SEC	ARR TYPE
EB	0	2	N	0	0	0.85	0	N	0.0	3
WB	0	2	N	0	0	0.85	0	N	0.0	3
NB	0	2	N	0	0	0.85	0	N	0.0	3
SB	0	2	Y	10	0	0.85	0	N	0.0	3

G E O M E T R I C S / V O L U M E S

APP	VOLUME LT	VOLUME TH	VOLUME RT	LANE GROUPS 1 MVM	1 LNS	1 WD	2 MVM	2 LNS	2 WD	3 MVM	3 LNS	3 WD
EB	0	0	0									
WB	35	106	0	LT	1	14.0						
NB	0	0	0									
SB	0	377	390	TR	2	26.0						

INTERSECTION :
STANHOPE ST. @
CLARENDON ST.
WEEKDAY AM PEAK HOUR 1988 EXISTING CBD?Y
UNSIGNALIZED
- MAJOR STREET RUNS NORTH / SOUTH

U N S I G N A L I Z E D C R I T I C A L G A P S

APP	CRITICAL GAPS (SEC) LEFT TURN	THROUGH	RIGHT TURN
EB	6.50	6.00	5.50
WB	6.50	6.00	5.50
NB	5.00	---	---
SB	5.00	---	---

V O L U M E A L L O C A T I O N T O L A N E S

APP	LANE 1 L	T	R	LANE 2 L	T	R	LANE 3 L	T	R
EB	0	0	0	0	0	0	0	0	0
WB	35	106	0	0	0	0	0	0	0
NB	0	0	0	0	0	0	0	0	0
SB	0	377	0	0	0	390	0	0	0

U N S I G N A L I Z E D

APP		LANE 1	LANE 2	LANE 3
EB	RESERVE CAPACITY	---	---	---
	LEVEL OF SERVICE			
WB	RESERVE CAPACITY	267	---	---
	LEVEL OF SERVICE	C		
NB	RESERVE CAPACITY	---	---	---
	LEVEL OF SERVICE			
SB	RESERVE CAPACITY	---	---	---
	LEVEL OF SERVICE			

MAJOR STREET - NB/SB

INTERSECTION :
STANHOPE ST. @
CLARENDON ST.
WEEKDAY PM PEAK HOUR 1988 EXISTING CBD?Y
UNSIGNALIZED
- MAJOR STREET RUNS NORTH / SOUTH

T R A F F I C & R O A D W A Y C O N D I T I O N S

APP	GRADE (%)	HV (%)	ADJ. PKG LN. Y/N	Nm	BUSES (Nb)	PHF	CONF. PEDS (peds/hr)	PED BUTTON Y/N	SEC	ARR TYPE
EB	0	2	N	0	0	0.85	0	N	0.0	3
WB	0	2	N	0	0	0.85	0	N	0.0	3
NB	0	2	N	0	0	0.85	0	N	0.0	3
SB	0	2	Y	10	0	0.85	0	N	0.0	3

G E O M E T R I C S / V O L U M E S

APP	VOLUME LT	TH	RT	LANE GROUPS 1 MVM	LNS	WD	2 MVM	LNS	WD	3 MVM	LNS	WD
EB	0	0	0									
WB	22	22	0	LT	1	14.0						
NB	0	0	0									
SB	0	564	90	TR	2	26.0						

INTERSECTION :
STANHOPE ST. @
CLARENDON ST.
WEEKDAY PM PEAK HOUR 1988 EXISTING CBD?Y
UNSIGNALIZED
- MAJOR STREET RUNS NORTH / SOUTH

U N S I G N A L I Z E D C R I T I C A L G A P S

APP	CRITICAL GAPS (SEC) LEFT TURN	THROUGH	RIGHT TURN
EB	6.50	6.00	5.50
WB	6.50	6.00	5.50
NB	5.00	---	---
SB	5.00	---	---

V O L U M E A L L O C A T I O N T O L A N E S

APP	LANE 1 L	T	R	LANE 2 L	T	R	LANE 3 L	T	R
EB	0	0	0	0	0	0	0	0	0
WB	22	22	0	0	0	0	0	0	0
NB	0	0	0	0	0	0	0	0	0
SB	0	327	0	0	237	90	0	0	0

U N S I G N A L I Z E D

APP		LANE 1	LANE 2	LANE 3
EB	RESERVE CAPACITY	---	---	---
	LEVEL OF SERVICE			
WB	RESERVE CAPACITY	395	---	---
	LEVEL OF SERVICE	B		
NB	RESERVE CAPACITY	---	---	---
	LEVEL OF SERVICE			
SB	RESERVE CAPACITY	---	---	---
	LEVEL OF SERVICE			

MAJOR STREET - NB/SB

HANCOCK DEVELOPMENT CA-6A

INTERSECTION :
COLUMBUS AVE. @
CAHNER PL.
WEEKDAY AM PEAK HOUR 1988 EXISTING CBD?Y
UNSIGNALIZED
- MAJOR STREET RUNS EAST / WEST

T R A F F I C & R O A D W A Y C O N D I T I O N S

APP	GRADE (%)	HV (%)	ADJ. PKG Y/N	LN. Nm	BUSES (Nb)	PHF	CONF. PEDS (peds/hr)	PED Y/N	BUTTON SEC	ARR TYPE
EB	0	2	N	0	0	0.85	0	N	0.0	3
WB	0	2	N	0	0	0.85	0	N	0.0	3
SB	0	2	N	0	0	0.85	0	N	0.0	3

G E O M E T R I C S / V O L U M E S

APP	VOLUME LT	TH	RT	LANE GROUPS 1 MVM	LNS	WD	2 MVM	LNS	WD	3 MVM	LNS	WD
EB	0	436	0	T	2	24.0						
WB	0	334	197	TR	2	24.0						
SB	0	0	7	R	1	12.0						

INTERSECTION :
COLUMBUS AVE. @
CAHNER PL.
WEEKDAY AM PEAK HOUR 1988 EXISTING CBD?Y
UNSIGNALIZED
- MAJOR STREET RUNS EAST / WEST

U N S I G N A L I Z E D C R I T I C A L G A P S

APP	CRITICAL GAPS (SEC) LEFT TURN	THROUGH	RIGHT TURN
EB	5.00	---	---
WB	---	---	---
SB	6.50	---	5.50

V O L U M E A L L O C A T I O N T O L A N E S

APP	LANE 1 L	T	R	LANE 2 L	T	R	LANE 3 L	T	R
EB	0	218	0	0	218	0	0	0	0
WB	0	265	0	0	69	197	0	0	0
SB	0	0	7	0	0	0	0	0	0

U N S I G N A L I Z E D

APP		LANE 1	LANE 2	LANE 3
EB	RESERVE CAPACITY	---	---	---
	LEVEL OF SERVICE			
WB	RESERVE CAPACITY	---	---	---
	LEVEL OF SERVICE			
SB	RESERVE CAPACITY	905	---	---
	LEVEL OF SERVICE	A		

MAJOR STREET - EB/WB

INTERSECTION :
COLUMBUS AVE. @
CAHNER PL.
WEEKDAY PM PEAK HOUR 1988 EXISTING CBD?Y
UNSIGNALIZED
- MAJOR STREET RUNS EAST / WEST

T R A F F I C & R O A D W A Y C O N D I T I O N S

APP	GRADE (%)	HV (%)	ADJ. Y/N	PKG LN. Nm	BUSES (Nb)	PHF	CONF. PEDS (peds/hr)	PED Y/N	BUTTON SEC	ARR TYPE
EB	0	2	N	0	0	0.85	0	N	0.0	3
WB	0	2	N	0	0	0.85	0	N	0.0	3
SB	0	2	N	0	0	0.85	0	N	0.0	3

G E O M E T R I C S / V O L U M E S

APP	VOLUME LT	TH	RT	LANE GROUPS 1 MVM	LNS	WD	2 MVM	LNS	WD	3 MVM	LNS	WD
EB	0	465	0	T	2	24.0						
WB	0	436	29	TR	2	24.0						
SB	0	0	5	R	1	12.0						

INTERSECTION :
COLUMBUS AVE. @
CAHNER PL.
WEEKDAY PM PEAK HOUR 1988 EXISTING CBD?Y
UNSIGNALIZED
- MAJOR STREET RUNS EAST / WEST

U N S I G N A L I Z E D C R I T I C A L G A P S

APP	CRITICAL GAPS (SEC) LEFT TURN	THROUGH	RIGHT TURN
EB	5.00	---	---
WB	---	---	---
SB	6.50	---	5.50

V O L U M E A L L O C A T I O N T O L A N E S

APP	LANE 1 L	T	R	LANE 2 L	T	R	LANE 3 L	T	R
EB	0	232	0	0	233	0	0	0	0
WB	0	232	0	0	204	29	0	0	0
SB	0	0	5	0	0	0	0	0	0

U N S I G N A L I Z E D

APP		LANE 1	LANE 2	LANE 3
EB	RESERVE CAPACITY	---	---	---
	LEVEL OF SERVICE			
WB	RESERVE CAPACITY	---	---	---
	LEVEL OF SERVICE			
SB	RESERVE CAPACITY	857	---	---
	LEVEL OF SERVICE	A		

MAJOR STREET - EB/WB

INTERSECTION :
COLUMBUS AVE. @
CLARENDON ST.
WEEKDAY AM PEAK HOUR 1988 EXISTING CBD?Y
ACTUATED SIGNAL

T R A F F I C & R O A D W A Y C O N D I T I O N S

APP	GRADE (%)	HV (%)	ADJ. PKG Y/N	LN. Nm	BUSES (Nb)	PHF	CONF. PEDS (peds/hr)	PED BUTTON Y/N	SEC	ARR TYPE
EB	0	2	Y	10	0	0.89	0	Y	12.5	3
WB	0	2	Y	10	0	0.87	0	Y	9.2	3
NB	0	0	N	0	0	0.90	0	N	0.0	3
SB	0	2	N	0	0	0.89	0	Y	17.0	3

G E O M E T R I C S / V O L U M E S

APP	VOLUME LT	TH	RT	LANE GROUPS 1 MVM	LNS	WD	2 MVM	LNS	WD	3 MVM	LNS	WD
EB	0	389	29	T	1	11.0	TR	1	12.0			
WB	41	300	0	LT	1	14.0	T	1	14.0			
NB	0	0	0									
SB	47	96	113	LT	1	13.0	T	1	12.0	R	1	12.0

S I G N A L P H A S I N G

APP	PHASE	1ST MV	2ND MV	3RD MV	PROT	PMSV	G	Y+R
EB	1	T	TR		R		62	38
WB	1	LT	T			L	62	38
SB	2	LT	T	R	R	L	32	68

HANCOCK DEVELOPMENT CA-7A

INTERSECTION :
COLUMBUS AVE. @
CLARENDON ST.
WEEKDAY AM PEAK HOUR 1988 EXISTING CBD ? Y
ACTUATED SIGNAL

V O L U M E A D J U S T M E N T

APPROACH	LANE GROUP MVM	VOLUME	FLOW RATE IN GROUP	LANE UTIL FACTOR	ADJ FLOW RATE	PROP OF TURNS LT	RT
EB	T	209	235	1.00	235	0.00	0.00
	TR	209	235	1.00	235	0.00	0.14
WB	LT	161	185	1.00	185	0.25	0.00
	T	180	207	1.00	207	0.00	0.00
NB							
SB	LT	66	74	1.00	74	0.71	0.00
	T	77	87	1.00	87	0.00	0.00
	R	113	127	1.00	127	0.00	1.00

S A T U R A T I O N F L O W

APP	MVM	IDEAL SAT FLOW	# OF LANES	ADJUSTMENT FACTORS WIDTH	H.V.	GRADE	PARK	BUS	AREA	RT	LT	ADJ. FLOW
EB	T	1800	1	0.97	0.99	1.00	1.00	1.00	0.90	1.00	1.00	1556
	TR	1800	1	1.00	0.99	1.00	0.85	1.00	0.90	0.98	1.00	1335
WB	LT	1800	1	1.07	0.99	1.00	1.00	1.00	0.90	1.00	0.83	1424
	T	1800	1	1.07	0.99	1.00	0.85	1.00	0.90	1.00	1.00	1459
NB												
SB	LT	1800	1	1.03	0.99	1.00	1.00	1.00	0.90	1.00	0.89	1470
	T	1800	1	1.00	0.99	1.00	1.00	1.00	0.90	1.00	1.00	1604
	R	1800	1	1.00	0.99	1.00	1.00	1.00	0.90	0.85	1.00	1363

HANCOCK DEVELOPMENT CA-7A

INTERSECTION :
COLUMBUS AVE. @
CLARENDON ST.
WEEKDAY AM PEAK HOUR 1988 EXISTING CBD ? Y
ACTUATED SIGNAL

C A P A C I T Y A N A L Y S I S

APP	LN GR MVM	ADJ FLOW RATE	PMSV LT FLOW	ADJ SAT FLW RT	FLOW RATIO	CRIT ?	GREEN RATIO	LN GR CAPACITY	V/C RATIO
EB	T	235	0	1556	0.151	N	0.620	965	0.244
	TR	235	0	1335	0.176	Y	0.620	828	0.284
WB	LT	185	0	1424	0.130	N	0.620	883	0.210
	T	207	0	1459	0.142	N	0.620	905	0.229
NB									
SB	LT	74	0	1470	0.050	N	0.320	470	0.157
	T	87	0	1604	0.054	N	0.320	513	0.170
	R	127	0	1363	0.093	Y	0.320	436	0.291

CYCLE LENGTH : 100.0 SUM OF CRITICAL LANES' FLOW RATIOS : 0.269
LOSS TIME PER CYCLE : 6 INTERSECTION V/C : 0.286

L E V E L O F S E R V I C E

APP	LN GR MVM	V/C RATIO	GREEN RATIO	CYC LEN	1st DELAY	LN GR CAP	2nd DELAY	PF	LN GR DELAY	LN GR LOS	APP DELAY	APP LOS
EB	T	0.244	0.620	100	6.5	965	0.0	0.85	5.5	B		
	TR	0.284	0.620	100	6.7	828	0.1	0.85	5.8	B	5.6	B
WB	LT	0.210	0.620	100	6.3	883	0.0	0.85	5.4	B		
	T	0.229	0.620	100	6.4	905	0.0	0.85	5.4	B	5.4	B
NB												
SB	LT	0.157	0.320	100	18.5	470	0.0	0.85	15.7	C		
	T	0.170	0.320	100	18.6	513	0.0	0.85	15.8	C		
	R	0.291	0.320	100	19.4	436	0.1	0.85	16.6	C	16.1	C

INTERSECTION DELAY : 8.1 secs/veh
LEVEL OF SERVICE : B

INTERSECTION :
COLUMBUS AVE. @
CLARENDON ST.
WEEKDAY PM PEAK HOUR 1988 EXISTING CBD?Y
ACTUATED SIGNAL

T R A F F I C & R O A D W A Y C O N D I T I O N S

APP	GRADE (%)	HV (%)	ADJ. PKG Y/N	LN. Nm	BUSES (Nb)	PHF	CONF. PEDS (peds/hr)	PED BUTTON Y/N	SEC	ARR TYPE
EB	0	8	Y	10	0	0.89	0	Y	12.5	3
WB	0	4	Y	10	0	0.87	0	Y	9.2	3
NB	0	0	N	0	0	0.90	0	N	0.0	3
SB	0	0	N	0	0	0.89	0	Y	17.0	3

G E O M E T R I C S / V O L U M E S

APP	VOLUME LT	TH	RT	LANE GROUPS 1 MVM	LNS	WD	2 MVM	LNS	WD	3 MVM	LNS	WD
EB	0	271	58	T	1	11.0	TR	1	12.0			
WB	55	386	0	LT	1	14.0	T	1	14.0			
NB	0	0	0									
SB	194	284	213	LT	1	13.0	T	1	12.0	R	1	12.0

S I G N A L P H A S I N G

APP	PHASE	1ST MV	2ND MV	3RD MV	PROT	PMSV	G	Y+R
EB	1	T	TR		R		54	46
WB	1	LT	T			L	54	46
SB	2	LT	T	R	R	L	40	60

HANCOCK DEVELOPMENT CA-78

INTERSECTION :
COLUMBUS AVE. @
CLARENDON ST.
WEEKDAY PM PEAK HOUR 1988 EXISTING CBD ? Y
ACTUATED SIGNAL

V O L U M E A D J U S T M E N T

APPROACH	LANE GROUP MVM	VOLUME	FLOW RATE IN GROUP	LANE UTIL FACTOR	ADJ FLOW RATE	PROP OF TURNS LT	RT
EB	T	165	185	1.00	185	0.00	0.00
	TR	164	184	1.00	184	0.00	0.35
WB	LT	205	236	1.00	236	0.23	0.00
	T	236	271	1.00	271	0.00	0.00
NB							
SB	LT	194	218	1.00	218	1.00	0.00
	T	284	319	1.00	319	0.00	0.00
	R	213	239	1.00	239	0.00	1.00

S A T U R A T I O N F L O W

APP	MVM	IDEAL SAT FLOW	# OF LANES	ADJUSTMENT FACTORS WIDTH	H.V.	GRADE	PARK	BUS	AREA	RT	LT	ADJ. FLOW
EB	T	1800	1	0.97	0.97	1.00	1.00	1.00	0.90	1.00	1.00	1524
	TR	1800	1	1.00	0.97	1.00	0.85	1.00	0.90	0.95	1.00	1266
WB	LT	1800	1	1.07	0.98	1.00	1.00	1.00	0.90	1.00	0.88	1495
	T	1800	1	1.07	0.98	1.00	0.85	1.00	0.90	1.00	1.00	1444
NB												
SB	LT	1800	1	1.03	1.00	1.00	1.00	1.00	0.90	1.00	0.95	1585
	T	1800	1	1.00	1.00	1.00	1.00	1.00	0.90	1.00	1.00	1620
	R	1800	1	1.00	1.00	1.00	1.00	1.00	0.90	0.85	1.00	1377

HANCOCK DEVELOPMENT CA-7B

INTERSECTION :
COLUMBUS AVE. @
CLARENDON ST.
WEEKDAY PM PEAK HOUR 1988 EXISTING CBD ? Y
ACTUATED SIGNAL

C A P A C I T Y A N A L Y S I S

APP	LN GR MVM	ADJ FLOW RATE	PMSV LT FLOW	ADJ SAT FLW RT	FLOW RATIO	CRIT ?	GREEN RATIO	LN GR CAPACITY	V/C RATIO
EB	T	185	0	1524	0.121	N	0.540	823	0.225
	TR	184	0	1266	0.145	N	0.540	684	0.269
WB	LT	236	0	1495	0.158	N	0.540	807	0.292
	T	271	0	1444	0.188	Y	0.540	780	0.347
NB									
SB	LT	218	0	1585	0.138	N	0.400	634	0.344
	T	319	0	1620	0.197	Y	0.400	648	0.492
	R	239	0	1377	0.174	N	0.400	551	0.434

CYCLE LENGTH : 100.0 SUM OF CRITICAL LANES' FLOW RATIOS : 0.385
LOSS TIME PER CYCLE : 6 INTERSECTION V/C : 0.410

L E V E L O F S E R V I C E

APP	LN GR MVM	V/C RATIO	GREEN RATIO	CYC LEN	1st DELAY	LN GR CAP	2nd DELAY	PF	LN GR DELAY	LN GR LOS	APP DELAY	APP LOS
EB	T	0.225	0.540	100	9.2	823	0.0	0.85	7.8	B		
	TR	0.269	0.540	100	9.4	684	0.1	0.85	8.1	B	7.9	B
WB	LT	0.292	0.540	100	9.5	807	0.1	0.85	8.2	B		
	T	0.347	0.540	100	9.9	780	0.1	0.85	8.5	B	8.3	B
NB												
SB	LT	0.344	0.400	100	15.9	634	0.1	0.85	13.6	B		
	T	0.492	0.400	100	17.0	648	0.5	0.85	14.9	B		
	R	0.434	0.400	100	16.6	551	0.4	0.85	14.4	B	14.4	B

INTERSECTION DELAY : 11.1 secs/veh
LEVEL OF SERVICE : B

INTERSECTION :
COLUMBUS AVE. @
DARTMOUTH ST.
WEEKDAY AM PEAK HOUR 1988 EXISTING CBD?Y
ACTUATED SIGNAL

T R A F F I C & R O A D W A Y C O N D I T I O N S

APP	GRADE (%)	HV (%)	ADJ. PKG Y/N	LN. Nm	BUSES (Nb)	PHF	CONF. PEDS (peds/hr)	PED BUTTON Y/N	SEC	ARR TYPE
EB	0	1	Y	10	0	0.90	0	N	0.0	3
WB	0	1	Y	10	0	0.87	0	N	0.0	3
NB	0	3	N	0	0	0.90	0	N	0.0	3
SB	0	6	Y	10	0	0.78	0	N	0.0	3

G E O M E T R I C S / V O L U M E S

APP	VOLUME LT	TH	RT	LANE GROUPS 1 MVM	LNS	WD	2 MVM	LNS	WD	3 MVM	LNS	WD
EB	219	280	43	LT	1	10.0	TR	1	10.0			
WB	44	249	120	LT	1	10.0	T	1	10.0	R	1	10.0
NB	25	295	32	LTR	1	18.0						
SB	76	186	44	LTR	1	18.0						

S I G N A L P H A S I N G

APP	PHASE	1ST MV	2ND MV	3RD MV	PROT	PMSV	G	Y+R
EB	1	LT	TR		R	L	47	53
WB	1	LT	T	R	R	L	47	53
NB	2	LTR			R	L	47	53
SB	2	LTR			R	L	47	53

HANCOCK DEVELOPMENT CA-8A

INTERSECTION :
COLUMBUS AVE. @
DARTMOUTH ST.
WEEKDAY AM PEAK HOUR 1988 EXISTING CBD ? Y
ACTUATED SIGNAL

V O L U M E A D J U S T M E N T

APPROACH	LANE GROUP MVM	VOLUME	FLOW RATE IN GROUP	LANE UTIL FACTOR	ADJ FLOW RATE	PROP OF TURNS LT	RT
EB	LT	219	243	1.00	243	1.00	0.00
	TR	323	359	1.00	359	0.00	0.13
WB	LT	100	115	1.00	115	0.44	0.00
	T	193	222	1.00	222	0.00	0.00
	R	120	138	1.00	138	0.00	1.00
NB	LTR	352	391	1.00	391	0.07	0.09
SB	LTR	306	392	1.00	392	0.25	0.14

S A T U R A T I O N F L O W

APP	MVM	IDEAL SAT FLOW	# OF LANES	ADJUSTMENT FACTORS WIDTH	H.V.	GRADE	PARK	BUS	AREA	RT	LT	ADJ. FLOW
EB	LT	1800	1	0.94	1.00	1.00	1.00	1.00	0.90	1.00	0.53	807
	TR	1800	1	0.94	1.00	1.00	0.85	1.00	0.90	0.98	1.00	1269
WB	LT	1800	1	0.94	1.00	1.00	1.00	1.00	0.90	1.00	0.54	822
	T	1800	1	0.94	1.00	1.00	1.00	1.00	0.90	1.00	1.00	1523
	R	1800	1	0.94	1.00	1.00	0.85	1.00	0.90	0.85	1.00	1100
NB	LTR	1800	1	1.20	0.99	1.00	1.00	1.00	0.90	0.89	0.97	1661
SB	LTR	1800	1	1.20	0.97	1.00	0.85	1.00	0.90	0.88	0.77	1086

HANCOCK DEVELOPMENT CA-8A

INTERSECTION :
COLUMBUS AVE. @
DARTMOUTH ST.
WEEKDAY AM PEAK HOUR 1988 EXISTING CBD ? Y
ACTUATED SIGNAL

C A P A C I T Y A N A L Y S I S

APP	LN GR MVM	ADJ FLOW RATE	PMSV LT FLOW	ADJ SAT FLW RT	FLOW RATIO	CRIT ?	GREEN RATIO	LN GR CAPACITY	V/C RATIO
EB	LT	243	0	807	0.301	Y	0.470	379	0.641
	TR	359	0	1269	0.283	N	0.470	596	0.602
WB	LT	115	0	822	0.140	N	0.470	386	0.298
	T	222	0	1523	0.146	N	0.470	716	0.310
	R	138	0	1100	0.125	N	0.470	517	0.267
NB	LTR	391	0	1661	0.235	N	0.470	781	0.501
SB	LTR	392	0	1086	0.361	Y	0.470	510	0.769

CYCLE LENGTH : 100.0 SUM OF CRITICAL LANES' FLOW RATIOS : 0.662
LOSS TIME PER CYCLE : 6 INTERSECTION V/C : 0.704

L E V E L O F S E R V I C E

APP	LN GR MVM	V/C RATIO	GREEN RATIO	CYC LEN	1st DELAY	LN GR CAP	2nd DELAY	PF	LN GR DELAY	LN GR LOS	APP DELAY	APP LOS
EB	LT	0.641	0.470	100	15.3	379	2.6	0.85	15.2	C		
	TR	0.602	0.470	100	14.9	596	1.2	0.85	13.7	B	14.3	B
WB	LT	0.298	0.470	100	12.4	386	0.1	0.85	10.6	B		
	T	0.310	0.470	100	12.5	716	0.1	0.85	10.7	B		
	R	0.267	0.470	100	12.2	517	0.1	0.85	10.5	B	10.6	B
NB	LTR	0.501	0.470	100	14.0	781	0.4	0.85	12.2	B	12.1	B
SB	LTR	0.769	0.470	100	16.7	510	4.8	0.85	18.3	C	18.2	C

INTERSECTION DELAY : 13.7 secs/veh
LEVEL OF SERVICE : B

INTERSECTION :
COLUMBUS AVE. @
DARTMOUTH ST.
WEEKDAY PM PEAK HOUR 1988 EXISTING CBD?Y
ACTUATED SIGNAL

T R A F F I C & R O A D W A Y C O N D I T I O N S

APP	GRADE (%)	HV (%)	ADJ. PKG Y/N	LN. Nm	BUSES (Nb)	PHF	CONF. PEDS (peds/hr)	PED Y/N	BUTTON SEC	ARR TYPE
EB	0	3	Y	10	0	0.83	0	N	0.0	3
WB	0	2	Y	10	0	0.93	0	N	0.0	3
NB	0	2	N	0	0	0.81	0	N	0.0	3
SB	0	2	Y	10	0	0.94	0	N	0.0	3

G E O M E T R I C S / V O L U M E S

APP	VOLUME LT	TH	RT	LANE GROUPS 1 MVM	LNS	WD	2 MVM	LNS	WD	3 MVM	LNS	WD
EB	157	215	27	LT	1	10.0	TR	1	10.0			
WB	130	335	74	LT	1	10.0	T	1	10.0	R	1	10.0
NB	24	282	26	LTR	1	18.0						
SB	88	319	107	LTR	1	18.0						

S I G N A L P H A S I N G

APP	PHASE	1ST MV	2ND MV	3RD MV	PROT	PMSV	G	Y+R
EB	1	LT	TR		R	L	43	57
WB	1	LT	T	R	R	L	43	57
NB	2	LTR			R	L	51	49
SB	2	LTR			R	L	51	49

HANCOCK DEVELOPMENT CA-8B

INTERSECTION :
COLUMBUS AVE. @
DARTMOUTH ST.
WEEKDAY PM PEAK HOUR 1988 EXISTING CBD ? Y
ACTUATED SIGNAL

V O L U M E A D J U S T M E N T

APPROACH	LANE GROUP MVM	VOLUME	FLOW RATE IN GROUP	LANE UTIL FACTOR	ADJ FLOW RATE	PROP OF TURNS LT	RT
EB	LT	165	199	1.00	199	0.95	0.00
	TR	234	282	1.00	282	0.00	0.12
WB	LT	190	204	1.00	204	1.00	0.00
	T	335	360	1.00	360	0.00	0.00
	R	74	80	1.00	80	0.00	1.00
NB	LTR	332	410	1.00	410	0.07	0.08
SB	LTR	514	547	1.00	547	0.17	0.21

S A T U R A T I O N F L O W

APP	MVM	IDEAL SAT FLOW	# OF LANES	ADJUSTMENT FACTORS WIDTH	H.V.	GRADE	PARK	BUS	AREA	RT	LT	ADJ. FLOW
EB	LT	1800	1	0.94	0.99	1.00	1.00	1.00	0.90	1.00	0.42	633
	TR	1800	1	0.94	0.99	1.00	0.85	1.00	0.90	0.98	1.00	1259
WB	LT	1800	1	0.94	0.99	1.00	1.00	1.00	0.90	1.00	0.43	648
	T	1800	1	0.94	0.99	1.00	1.00	1.00	0.90	1.00	1.00	1508
	R	1800	1	0.94	0.99	1.00	0.85	1.00	0.90	0.85	1.00	1089
NB	LTR	1800	1	1.20	0.99	1.00	1.00	1.00	0.90	0.89	0.91	1559
SB	LTR	1800	1	1.20	0.99	1.00	0.85	1.00	0.90	0.87	0.84	1195

HANCOCK DEVELOPMENT CA-8B

INTERSECTION :
COLUMBUS AVE. @
DARTMOUTH ST.
WEEKDAY PM PEAK HOUR 1988 EXISTING CBD ? Y
ACTUATED SIGNAL

C A P A C I T Y A N A L Y S I S

APP	LN GR MVM	ADJ FLOW RATE	PMSV LT FLOW	ADJ SAT FLW RT	FLOW RATIO	CRIT ?	GREEN RATIO	LN GR CAPACITY	V/C RATIO
EB	LT	199	0	633	0.314	N	0.430	272	0.732
	TR	282	0	1259	0.224	N	0.430	541	0.521
WB	LT	204	0	648	0.315	Y	0.430	279	0.731
	T	360	0	1508	0.239	N	0.430	648	0.556
	R	80	0	1089	0.073	N	0.430	468	0.171
NB	LTR	410	0	1559	0.263	N	0.510	795	0.516
SB	LTR	547	0	1195	0.458	Y	0.510	609	0.898

CYCLE LENGTH : 100.0 SUM OF CRITICAL LANES' FLOW RATIOS : 0.773
LOSS TIME PER CYCLE : 6 INTERSECTION V/C : 0.822

L E V E L O F S E R V I C E

APP	LN GR MVM	V/C RATIO	GREEN RATIO	CYC LEN	1st DELAY	LN GR CAP	2nd DELAY	PF	LN GR DELAY	LN GR LOS	APP DELAY	APP LOS
EB	LT	0.732	0.430	100	18.0	272	6.6	0.85	20.9	C		
	TR	0.521	0.430	100	15.9	541	0.7	0.85	14.1	B	16.9	C
WB	LT	0.731	0.430	100	18.0	279	6.4	0.85	20.7	C		
	T	0.556	0.430	100	16.2	648	0.8	0.85	14.4	B		
	R	0.171	0.430	100	13.3	468	0.0	0.85	11.3	B	16.0	C
NB	LTR	0.516	0.510	100	12.4	795	0.5	0.85	11.0	B	10.9	B
SB	LTR	0.898	0.510	100	16.8	609	11.5	0.85	24.1	C	24.0	C

INTERSECTION DELAY : 17.3 secs/veh
LEVEL OF SERVICE : C

APPENDIX B

NO-BUILD CONDITION CAPACITY ANALYSIS

SECTION :
RT ST. @
MOUTH ST.
DAY AM PEAK HOUR 91 NB CBD?Y
ATED SIGNAL

T R A F F I C & R O A D W A Y C O N D I T I O N S

GRADE (%)	HV (%)	ADJ. PKG Y/N	LN. Nm	BUSES (Nb)	PHF	CONF. PEDS (peds/hr)	PED BUTTON Y/N	SEC	ARR TYPE
0	2	N	0	0	0.90	0	Y	18.0	3
0	0	N	0	0	0.90	0	Y	14.2	3
0	2	N	0	0	0.90	0	Y	16.5	3
0	0	N	0	0	0.90	0	Y	21.0	3

G E O M E T R I C S / V O L U M E S

P	VOLUME LT	TH	RT	LANE GROUPS 1 MVM	LNS	WD	2 MVM	LNS	WD	3 MVM	LNS	WD
B	715	1043	505	L	1	32.0	TR	3	30.0	R	1	10.0
B	0	0	0									
B	0	476	154	T	1	15.0	TR	1	15.0			
B	0	0	0									

S I G N A L P H A S I N G

P	PHASE	1ST MV	2ND MV	3RD MV	PROT	PMSV	G	Y+R
B	1	TR	R		R		55	45
B	8	L			L		100	0
B	2	T	TR		R		39	61

HANCOCK DEVELOPMENT CA-1C

INTERSECTION :
STUART ST. @
DARTMOUTH ST.
WEEKDAY AM PEAK HOUR 91 NB CBD ? Y
ACTUATED SIGNAL

V O L U M E A D J U S T M E N T

APPROACH	LANE GROUP MVM	VOLUME	FLOW RATE IN GROUP	LANE UTIL FACTOR	ADJ FLOW RATE	PROP OF TURNS LT	RT
EB	L	715	794	1.00	794	1.00	0.00
	TR	1063	1181	1.00	1181	0.00	0.02
	R	485	539	1.00	539	0.00	1.00
WB							
NB	T	345	383	1.00	383	0.00	0.00
	TR	285	317	1.00	317	0.00	0.54
SB							

S A T U R A T I O N F L O W

APP	MVM	IDEAL SAT FLOW	# OF LANES	ADJUSTMENT FACTORS WIDTH	H.V.	GRADE	PARK	BUS	AREA	RT	LT	ADJ. FLOW
EB	L	1800	1	1.66	0.99	1.00	1.00	1.00	0.90	1.00	0.95	2529
	TR	1800	3	0.94	0.99	1.00	1.00	1.00	0.90	1.00	1.00	4509
	R	1800	1	0.94	0.99	1.00	1.00	1.00	0.90	0.85	1.00	1281
WB												
NB	T	1800	1	1.10	0.99	1.00	1.00	1.00	0.90	1.00	1.00	1764
	TR	1800	1	1.10	0.99	1.00	1.00	1.00	0.90	0.92	1.00	1621
SB												

HANCOCK DEVELOPMENT CA-1C

RSECTION :
RT ST. @
MOUTH ST.
DAY AM PEAK HOUR 91 NB CBD ? Y
ATED SIGNAL

C A P A C I T Y A N A L Y S I S

LN GR MVM	ADJ FLOW RATE	PMSV LT FLOW	ADJ SAT FLW RT	FLOW RATIO	CRIT ?	GREEN RATIO	LN GR CAPACITY	V/C RATIO
L	794	0	2529	0.314	N	1.000	2529	0.314
TR	1181	0	4509	0.262	N	0.550	2480	0.476
R	539	0	1281	0.421	Y	0.550	705	0.765
T	383	0	1764	0.217	Y	0.390	688	0.557
TR	317	0	1621	0.196	N	0.390	632	0.502

E LENGTH : 100.0 SUM OF CRITICAL LANES' FLOW RATIOS : 0.638
TIME PER CYCLE : 6 INTERSECTION V/C : 0.679

L E V E L O F S E R V I C E

LN GR MVM	V/C RATIO	GREEN RATIO	CYC LEN	1st DELAY	LN GR CAP	2nd DELAY	PF	LN GR DELAY	LN GR LOS	APP DELAY	APP LOS
L	0.314	1.000	100	0.0	2529	0.0	1.00	0.0	A		
TR	0.476	0.550	100	10.4	2480	0.1	0.85	8.9	B		
R	0.765	0.550	100	13.3	705	3.5	0.85	14.3	B	7.2	B
T	0.557	0.390	100	18.1	688	0.8	0.85	16.1	C		
TR	0.502	0.390	100	17.6	632	0.5	0.85	15.4	C	15.8	C

INTERSECTION DELAY : 9.1 secs/veh
LEVEL OF SERVICE : B

INTERSECTION :
STUART ST. @
DARTMOUTH ST.
WEEKDAY PM PEAK HOUR 91 NB CBD?Y
ACTUATED SIGNAL

T R A F F I C & R O A D W A Y C O N D I T I O N S

APP	GRADE (%)	HV (%)	ADJ. Y/N	PKG LN. Nm	BUSES (Nb)	PHF	CONF. PEDS (peds/hr)	PED Y/N	BUTTON SEC	ARR TYPE
EB	0	0	N	0	0	0.90	0	Y	18.0	3
WB	0	0	N	0	0	0.90	0	Y	14.2	3
NB	0	3	N	0	0	0.90	0	Y	16.5	3
SB	0	0	N	0	0	0.90	0	Y	21.0	3

G E O M E T R I C S / V O L U M E S

	VOLUME			LANE GROUPS 1			2			3		
APP	LT	TH	RT	MVM	LNS	WD	MVM	LNS	WD	MVM	LNS	WD
EB	1038	898	547	L	1	32.0	TR	3	30.0	R	1	10.0
WB	0	0	0									
NB	0	796	96	T	1	15.0	TR	1	15.0			
SB	0	0	0									

S I G N A L P H A S I N G

APP	PHASE	1ST MV	2ND MV	3RD MV	PROT	PMSV	G	Y+R
EB	1	TR	R		R		50	50
EB	8	L			L		100	0
NB	2	T	TR		R		44	56

HANCOCK DEVELOPMENT CA-1D

RSECTION :
RT ST. @
MOUTH ST.
DAY PM PEAK HOUR 91 NB CBD ? Y
ATED SIGNAL

V O L U M E A D J U S T M E N T

OACH	LANE GROUP MVM	FLOW RATE VOLUME	IN GROUP	LANE UTIL FACTOR	ADJ FLOW RATE	PROP OF TURNS LT	RT
	L	1038	1153	1.00	1153	1.00	0.00
	TR	910	1011	1.00	1011	0.00	0.01
	R	535	594	1.00	594	0.00	1.00
	T	446	496	1.00	496	0.00	0.00
	TR	446	496	1.00	496	0.00	0.22

S A T U R A T I O N F L O W

MVM	IDEAL SAT FLOW	# OF LANES	ADJUSTMENT FACTORS WIDTH	H.V.	GRADE	PARK	BUS	AREA	RT	LT	ADJ. FLOW
L	1800	1	1.66	1.00	1.00	1.00	1.00	0.90	1.00	0.95	2555
TR	1800	3	0.94	1.00	1.00	1.00	1.00	0.90	1.00	1.00	4562
R	1800	1	0.94	1.00	1.00	1.00	1.00	0.90	0.85	1.00	1294
T	1800	1	1.10	0.99	1.00	1.00	1.00	0.90	1.00	1.00	1764
TR	1800	1	1.10	0.99	1.00	1.00	1.00	0.90	0.97	1.00	1706

HANCOCK DEVELOPMENT CA-1D

INTERSECTION :
STUART ST. @
DARTMOUTH ST.
WEEKDAY PM PEAK HOUR 91 NB CBD ? Y
ACTUATED SIGNAL

C A P A C I T Y A N A L Y S I S

APP	LN GR MVM	ADJ FLOW RATE	PMSV LT FLOW	ADJ SAT FLW RT	FLOW RATIO	CRIT ?	GREEN RATIO	LN GR CAPACITY	V/C RATIO
EB	L	1153	0	2555	0.451	N	1.000	2555	0.451
	TR	1011	0	4562	0.222	N	0.500	2281	0.443
	R	594	0	1294	0.459	Y	0.500	647	0.918
WB									
NB	T	496	0	1764	0.281	N	0.440	776	0.639
	TR	496	0	1706	0.291	Y	0.440	751	0.660
SB									

CYCLE LENGTH : 100.0 SUM OF CRITICAL LANES' FLOW RATIOS : 0.750
LOSS TIME PER CYCLE : 6 INTERSECTION V/C : 0.798

L E V E L O F S E R V I C E

APP	LN GR MVM	V/C RATIO	GREEN RATIO	CYC LEN	1st DELAY	LN GR CAP	2nd DELAY	PF	LN GR DELAY	LN GR LOS	APP DELAY	APP LOS
EB	L	0.451	1.000	100	0.0	2555	0.1	1.00	0.1	A		
	TR	0.443	0.500	100	12.2	2281	0.1	0.85	10.5	B		
	R	0.918	0.500	100	17.6	647	13.1	0.85	26.1	D	9.5	B
WB												
NB	T	0.639	0.440	100	16.6	776	1.3	0.85	15.2	C		
	TR	0.660	0.440	100	16.8	751	1.5	0.85	15.6	C	15.4	C
SB												

INTERSECTION DELAY : 11.0 secs/veh
LEVEL OF SERVICE : B

RSECTION :
RT ST. @
NITY PLACE
KDAY AM PEAK HOUR 91 NB CBD?Y
GNALIZED
MAJOR STREET RUNS EAST / WEST

T R A F F I C & R O A D W A Y C O N D I T I O N S

P	GRADE (%)	HV (%)	ADJ. PKG Y/N	LN. Nm	BUSES (Nb)	PHF	CONF. PEDS (peds/hr)	PED BUTTON Y/N	SEC	ARR TYPE
B	0	2	N	0	0	0.89	0	N	0.0	3
B	0	0	N	0	0	0.90	0	N	0.0	3
B	0	0	N	0	0	0.94	0	N	0.0	3
B	0	0	N	0	0	0.90	0	N	0.0	3

G E O M E T R I C S / V O L U M E S

	VOLUME			LANE GROUPS 1			2			3		
PP	LT	TH	RT	MVM	LNS	WD	MVM	LNS	WD	MVM	LNS	WD
EB	46	1019	132	LTR	3	30.0						
WB	0	0	0									
NB	0	17	11	TR	1	12.0						
SB	15	8	0	LT	1	12.0						

INTERSECTION :
STUART ST. @
TRINITY PLACE
WEEKDAY AM PEAK HOUR 91 NB CBD?Y
UNSIGNALIZED
- MAJOR STREET RUNS EAST / WEST

U N S I G N A L I Z E D C R I T I C A L G A P S

APP	CRITICAL GAPS (SEC) LEFT TURN	THROUGH	RIGHT TURN
EB	5.00	---	---
WB	5.00	---	---
NB	6.50	6.00	5.50
SB	6.50	6.00	5.50

V O L U M E A L L O C A T I O N T O L A N E S

APP	LANE 1 L	T	R	LANE 2 L	T	R	LANE 3 L	T	R
EB	46	347	0	0	402	0	0	270	132
WB	0	0	0	0	0	0	0	0	0
NB	0	17	11	0	0	0	0	0	0
SB	15	8	0	0	0	0	0	0	0

U N S I G N A L I Z E D

APP		LANE 1	LANE 2	LANE 3
EB	RESERVE CAPACITY	1153	---	---
	LEVEL OF SERVICE	A		
WB	RESERVE CAPACITY	---	---	---
	LEVEL OF SERVICE			
NB	RESERVE CAPACITY	272	---	---
	LEVEL OF SERVICE	C		
SB	RESERVE CAPACITY	163	---	---
	LEVEL OF SERVICE	D		

MAJOR STREET - EB/WB

RSECTION :
RT ST. @
ITY PLACE
DAY PM PEAK HOUR 91 NB CBD?Y
GNALIZED
AJOR STREET RUNS EAST / WEST

T R A F F I C & R O A D W A Y C O N D I T I O N S

	GRADE (%)	HV (%)	ADJ. PKG Y/N	LN. Nm	BUSES (Nb)	PHF	CONF. PEDS (peds/hr)	PED BUTTON Y/N	SEC	ARR TYPE
)	0	5	N	0	0	0.89	0	N	0.0	3
)	0	0	N	0	0	0.90	0	N	0.0	3
)	0	0	N	0	0	0.94	0	N	0.0	3
)	0	3	N	0	0	0.90	0	N	0.0	3

G E O M E T R I C S / V O L U M E S

	VOLUME			LANE GROUPS 1			2			3		
P	LT	TH	RT	MVM	LNS	WD	MVM	LNS	WD	MVM	LNS	WD
EB	35	959	0	TR	3	30.0						
WB	0	0	0									
NB	0	83	39	TR	1	12.0						
SB	24	0	0	TR	1	12.0						

INTERSECTION :
STUART ST. @
TRINITY PLACE
WEEKDAY PM PEAK HOUR 91 NB CBD?Y
UNSIGNALIZED
- MAJOR STREET RUNS EAST / WEST

U N S I G N A L I Z E D C R I T I C A L G A P S

APP	CRITICAL GAPS (SEC) LEFT TURN	THROUGH	RIGHT TURN
EB	5.00	---	---
WB	5.00	---	---
NB	6.50	6.00	5.50
SB	6.50	6.00	5.50

V O L U M E A L L O C A T I O N T O L A N E S

APP	LANE 1 L	T	R	LANE 2 L	T	R	LANE 3 L	T	R
EB	0	320	0	0	319	0	0	320	0
WB	0	0	0	0	0	0	0	0	0
NB	0	83	39	0	0	0	0	0	0
SB	0	0	0	0	0	0	0	0	0

U N S I G N A L I Z E D

APP		LANE 1	LANE 2	LANE 3
EB	RESERVE CAPACITY	---	---	---
	LEVEL OF SERVICE			
WB	RESERVE CAPACITY	---	---	---
	LEVEL OF SERVICE			
NB	RESERVE CAPACITY	233	---	---
	LEVEL OF SERVICE	C		
SB	RESERVE CAPACITY	---	---	---
	LEVEL OF SERVICE			

MAJOR STREET - EB/WB

SECTION :
T ST. @
ENDON ST.
DAY AM PEAK HOUR 91 NB CBD?Y
ATED SIGNAL

T R A F F I C & R O A D W A Y C O N D I T I O N S

GRADE (%)	HV (%)	ADJ. PKG Y/N	LN. Nm	BUSES (Nb)	PHF	CONF. PEDS (peds/hr)	PED BUTTON Y/N	SEC	ARR TYPE
0	5	Y	10	0	0.94	0	Y	12.5	3
0	0	N	0	0	0.90	0	N	0.0	3
0	0	N	0	0	0.90	0	N	0.0	3
0	3	Y	10	0	0.83	0	Y	8.5	3

G E O M E T R I C S / V O L U M E S

VOLUME LT	TH	RT	LANE GROUPS 1 MVM	LNS	WD	2 MVM	LNS	WD	3 MVM	LNS	WD
0	838	207	T	1	13.0	TR	1	13.0			
0	0	0									
0	0	0									
180	655	0	LT	1	11.0	T	1	11.0			

S I G N A L P H A S I N G

PHASE	1ST MV	2ND MV	3RD MV	PROT	PMSV	G	Y+R
1	T	TR		R		48	5.2
2	LT	T		L		46	5.4

HANCOCK DEVELOPMENT CA-3C

INTERSECTION :
STUART ST. @
CLARENDON ST.
WEEKDAY AM PEAK HOUR 91 NB CBD ? Y
ACTUATED SIGNAL

VOLUME ADJUSTMENT

APPROACH	LANE GROUP MVM	VOLUME	FLOW RATE IN GROUP	LANE UTIL FACTOR	ADJ FLOW RATE	PROP OF TURNS LT	RT
EB	T	623	663	1.00	663	0.00	0.00
	TR	422	449	1.00	449	0.00	0.49
WB							
NB							
SB	LT	434	523	1.00	523	0.41	0.00
	T	401	483	1.00	483	0.00	0.00

SATURATION FLOW

APP	MVM	IDEAL SAT FLOW	# OF LANES	ADJUSTMENT FACTORS WIDTH	H.V.	GRADE	PARK	BUS	AREA	RT	LT	ADJ. FLOW
EB	T	1800	1	1.03	0.98	1.00	1.00	1.00	0.90	1.00	1.00	1635
	TR	1800	1	1.03	0.98	1.00	0.85	1.00	0.90	0.93	1.00	1288
WB												
NB												
SB	LT	1800	1	0.97	0.99	1.00	1.00	1.00	0.90	1.00	0.94	1460
	T	1800	1	0.97	0.99	1.00	0.85	1.00	0.90	1.00	1.00	1322

HANCOCK DEVELOPMENT CA-3C

?SECTION :
?T ST. @
ENDON ST.
DAY AM PEAK HOUR 91 NB CBD ? Y
ATED SIGNAL

C A P A C I T Y A N A L Y S I S

LN GR MVM	ADJ FLOW RATE	PMSV LT FLOW	ADJ SAT FLW RT	FLOW RATIO	CRIT ?	GREEN RATIO	LN GR CAPACITY	V/C RATIO
T	663	0	1635	0.406	Y	0.480	785	0.845
TR	449	0	1288	0.349	N	0.480	618	0.727
LT	523	0	1460	0.358	N	0.460	672	0.778
T	483	0	1322	0.365	Y	0.460	608	0.794

E LENGTH : 100.0 SUM OF CRITICAL LANES' FLOW RATIOS : 0.771
TIME PER CYCLE : 6 INTERSECTION V/C : 0.820

L E V E L O F S E R V I C E

LN GR MVM	V/C RATIO	GREEN RATIO	CYC LEN	1st DELAY	LN GR CAP	2nd DELAY	PF	LN GR DELAY	LN GR LOS	APP DELAY	APP LOS
T	0.845	0.480	100	17.3	785	5.9	0.85	19.7	C		
TR	0.727	0.480	100	15.8	618	3.0	0.85	16.0	C	18.2	C
LT	0.778	0.460	100	17.3	672	4.0	0.85	18.1	C		
T	0.794	0.460	100	17.5	608	5.0	0.85	19.1	C	18.6	C

INTERSECTION DELAY : 18.3 secs/veh
LEVEL OF SERVICE : C

INTERSECTION :
STUART ST. @
CLARENDON ST.
WEEKDAY PM PEAK HOUR 91 NB CBD?Y
ACTUATED SIGNAL

T R A F F I C & R O A D W A Y C O N D I T I O N S

APP	GRADE (%)	HV (%)	ADJ. PKG LN. Y/N	Nm	BUSES (Nb)	PHF	CONF. PEDS (peds/hr)	PED Y/N	BUTTON SEC	ARR TYPE
EB	0	0	Y	10	0	0.94	0	Y	12.5	3
WB	0	0	N	0	0	0.90	0	N	0.0	3
NB	0	0	N	0	0	0.90	0	N	0.0	3
SB	0	0	Y	10	0	0.83	0	Y	8.5	3

G E O M E T R I C S / V O L U M E S

APP	VOLUME LT	TH	RT	LANE GROUPS 1 MVM	LNS	WD	2 MVM	LNS	WD	3 MVM	LNS	WD
EB	0	580	442	T	1	13.0	TR	1	13.0			
WB	0	0	0									
NB	0	0	0									
SB	92	565	0	LT	1	11.0	T	1	11.0			

S I G N A L P H A S I N G

APP	PHASE	1ST MV	2ND MV	3RD MV	PROT	PMSV	G	Y+R
EB	1	T	TR		R		48	52
SB	2	LT	T		L		46	54

HANCOCK DEVELOPMENT CA-3D

RSECTION :
RT ST. @
ENDON ST.
DAY PM PEAK HOUR 91 NB CBD ? Y
ATED SIGNAL

V O L U M E A D J U S T M E N T

OACH	LANE GROUP MVM	VOLUME	FLOW RATE IN GROUP	LANE UTIL FACTOR	ADJ FLOW RATE	PROP OF TURNS LT	RT
	T	550	585	1.00	585	0.00	0.00
	TR	472	502	1.00	502	0.00	0.94
	LT	329	396	1.00	396	0.28	0.00
	T	328	395	1.00	395	0.00	0.00

S A T U R A T I O N F L O W

MVM	IDEAL SAT FLOW	# OF LANES	ADJUSTMENT FACTORS WIDTH	H.V.	GRADE	PARK	BUS	AREA	RT	LT	ADJ. FLOW
T	1800	1	1.03	1.00	1.00	1.00	1.00	0.90	1.00	1.00	1669
TR	1800	1	1.03	1.00	1.00	0.85	1.00	0.90	0.86	1.00	1218
LT	1800	1	0.97	1.00	1.00	1.00	1.00	0.90	1.00	0.96	1505
T	1800	1	0.97	1.00	1.00	0.85	1.00	0.90	1.00	1.00	1336

HANCOCK DEVELOPMENT CA-3D

INTERSECTION :
STUART ST. @
CLARENDON ST.
WEEKDAY PM PEAK HOUR 91 NB CBD ? Y
ACTUATED SIGNAL

C A P A C I T Y A N A L Y S I S

APP	LN GR MVM	ADJ FLOW RATE	PMSV LT FLOW	ADJ SAT FLW RT	FLOW RATIO	CRIT ?	GREEN RATIO	LN GR CAPACITY	V/C RATIO
EB	T	585	0	1669	0.351	N	0.480	801	0.730
	TR	502	0	1218	0.412	Y	0.480	585	0.858
WB									
NB									
SB	LT	396	0	1505	0.263	N	0.460	692	0.572
	T	395	0	1336	0.296	Y	0.460	615	0.642

CYCLE LENGTH : 100.0 SUM OF CRITICAL LANES' FLOW RATIOS : 0.708
LOSS TIME PER CYCLE : 6 INTERSECTION V/C : 0.753

L E V E L O F S E R V I C E

APP	LN GR MVM	V/C RATIO	GREEN RATIO	CYC LEN	1st DELAY	LN GR CAP	2nd DELAY	PF	LN GR DELAY	LN GR LOS	APP DELAY	APP LOS
EB	T	0.730	0.480	100	15.8	801	2.4	0.85	15.5	C		
	TR	0.858	0.480	100	17.5	585	8.5	0.85	22.1	C	18.5	C
WB												
NB												
SB	LT	0.572	0.460	100	15.0	692	0.9	0.85	13.5	B		
	T	0.642	0.460	100	15.7	615	1.6	0.85	14.7	B	14.1	B

INTERSECTION DELAY : 16.6 secs/veh
LEVEL OF SERVICE : C

RSECTION :
HOPE ST. @
RENDON ST.
(DAY AM PEAK HOUR 91 NB CBD?Y
GNALIZED
AJOR STREET RUNS NORTH / SOUTH

T R A F F I C & R O A D W A Y C O N D I T I O N S

	GRADE (%)	HV (%)	ADJ. PKG Y/N	LN. Nm	BUSES (Nb)	PHF	CONF. PEDS (peds/hr)	PED BUTTON Y/N	SEC	ARR TYPE
3	0	2	N	0	0	0.85	0	N	0.0	3
3	0	2	N	0	0	0.85	0	N	0.0	3
3	0	2	N	0	0	0.85	0	N	0.0	3
3	0	2	Y	10	0	0.85	0	N	0.0	3

G E O M E T R I C S / V O L U M E S

	VOLUME			LANE GROUPS 1			2			3		
PP	LT	TH	RT	MVM	LNS	WD	MVM	LNS	WD	MVM	LNS	WD
EB	0	0	0									
WB	35	106	0	LT	1	14.0						
NB	0	0	0									
SB	0	401	461	TR	2	26.0						

INTERSECTION :
STANHOPE ST. @
CLARENDON ST.
WEEKDAY AM PEAK HOUR 91 NB CBD?Y
UNSIGNALIZED
- MAJOR STREET RUNS NORTH / SOUTH

U N S I G N A L I Z E D C R I T I C A L G A P S

APP	CRITICAL GAPS (SEC) LEFT TURN	THROUGH	RIGHT TURN
EB	6.50	6.00	5.50
WB	6.50	6.00	5.50
NB	5.00	---	---
SB	5.00	---	---

V O L U M E A L L O C A T I O N T O L A N E S

APP	LANE 1 L	T	R	LANE 2 L	T	R	LANE 3 L	T	R
EB	0	0	0	0	0	0	0	0	0
WB	35	106	0	0	0	0	0	0	0
NB	0	0	0	0	0	0	0	0	0
SB	0	401	0	0	0	461	0	0	0

U N S I G N A L I Z E D

APP		LANE 1	LANE 2	LANE 3
EB	RESERVE CAPACITY	---	---	---
	LEVEL OF SERVICE			
WB	RESERVE CAPACITY	221	---	---
	LEVEL OF SERVICE	C		
NB	RESERVE CAPACITY	---	---	---
	LEVEL OF SERVICE			
SB	RESERVE CAPACITY	---	---	---
	LEVEL OF SERVICE			

MAJOR STREET - NB/SB

RSECTION :
HOPE ST. @
ENDON ST.
DAY PM PEAK HOUR 91 NB CBD?Y
GNALIZED
AJOR STREET RUNS NORTH / SOUTH

T R A F F I C & R O A D W A Y C O N D I T I O N S

GRADE (%)	HV (%)	ADJ. PKG Y/N	LN. Nm	BUSES (Nb)	PHF	CONF. PEDS (peds/hr)	PED BUTTON Y/N	SEC	ARR TYPE
0	2	N	0	0	0.85	0	N	0.0	3
0	2	N	0	0	0.85	0	N	0.0	3
0	2	N	0	0	0.85	0	N	0.0	3
0	2	Y	10	0	0.85	0	N	0.0	3

G E O M E T R I C S / V O L U M E S

	VOLUME			LANE GROUPS 1			2			3		
P	LT	TH	RT	MVM	LNS	WD	MVM	LNS	WD	MVM	LNS	WD
EB	0	0	0									
NB	22	22	0	LT	1	14.0						
WB	0	0	0									
SB	0	860	200	TR	2	26.0						

INTERSECTION :
STANHOPE ST. @
CLARENDON ST.
WEEKDAY PM PEAK HOUR 91 NB CBD?Y
UNSIGNALIZED
- MAJOR STREET RUNS NORTH / SOUTH

U N S I G N A L I Z E D C R I T I C A L G A P S

APP	CRITICAL GAPS (SEC) LEFT TURN	THROUGH	RIGHT TURN
EB	6.50	6.00	5.50
WB	6.50	6.00	5.50
NB	5.00	---	---
SB	5.00	---	---

V O L U M E A L L O C A T I O N T O L A N E S

APP	LANE 1 L	T	R	LANE 2 L	T	R	LANE 3 L	T	R
EB	0	0	0	0	0	0	0	0	0
WB	22	22	0	0	0	0	0	0	0
NB	0	0	0	0	0	0	0	0	0
SB	0	530	0	0	330	200	0	0	0

U N S I G N A L I Z E D

APP		LANE 1	LANE 2	LANE 3
EB	RESERVE CAPACITY	---	---	---
	LEVEL OF SERVICE			
WB	RESERVE CAPACITY	217	---	---
	LEVEL OF SERVICE	C		
NB	RESERVE CAPACITY	---	---	---
	LEVEL OF SERVICE			
SB	RESERVE CAPACITY	---	---	---
	LEVEL OF SERVICE			

MAJOR STREET - NB/SB

RSECTION :
MBUS AVE. @
ER PL.
DAY AM PEAK HOUR 91 NB CBD?Y
GNALIZED
AJOR STREET RUNS EAST / WEST

T R A F F I C & R O A D W A Y C O N D I T I O N S

	GRADE (%)	HV (%)	ADJ. PKG Y/N	LN. Nm	BUSES (Nb)	PHF	CONF. PEDS (peds/hr)	PED BUTTON Y/N	SEC	ARR TYPE
	0	2	N	0	0	0.85	0	N	0.0	3
	0	2	N	0	0	0.85	0	N	0.0	3
	0	2	N	0	0	0.85	0	N	0.0	3

G E O M E T R I C S / V O L U M E S

	VOLUME			LANE GROUPS 1			2			3		
PP	LT	TH	RT	MVM	LNS	WD	MVM	LNS	WD	MVM	LNS	WD
EB	0	494	0	T	2	24.0						
WB	0	390	197	TR	2	24.0						
SB	0	0	7	R	1	12.0						

INTERSECTION :
COLUMBUS AVE. @
CAHNER PL.
WEEKDAY AM PEAK HOUR 91 NB CBD?Y
UNSIGNALIZED
- MAJOR STREET RUNS EAST / WEST

U N S I G N A L I Z E D C R I T I C A L G A P S

APP	CRITICAL GAPS (SEC) LEFT TURN	THROUGH	RIGHT TURN
EB	5.00	---	---
WB	---	---	---
SB	6.50	---	5.50

V O L U M E A L L O C A T I O N T O L A N E S

APP	LANE 1 L	T	R	LANE 2 L	T	R	LANE 3 L	T	R
EB	0	247	0	0	247	0	0	0	0
WB	0	293	0	0	97	197	0	0	0
SB	0	0	7	0	0	0	0	0	0

U N S I G N A L I Z E D

APP		LANE 1	LANE 2	LANE 3
EB	RESERVE CAPACITY	---	---	---
	LEVEL OF SERVICE			
WB	RESERVE CAPACITY	---	---	---
	LEVEL OF SERVICE			
SB	RESERVE CAPACITY	877	---	---
	LEVEL OF SERVICE	A		

MAJOR STREET - EB/WB

?RSECTION :
MBUS AVE. @
NER PL.
<DAY PM PEAK HOUR 91 NB CBD?Y
IGNALIZED
MAJOR STREET RUNS EAST / WEST

T R A F F I C & R O A D W A Y C O N D I T I O N S

P	GRADE (%)	HV (%)	ADJ. PKG Y/N	LN. Nm	BUSES (Nb)	PHF	CONF. PEDS (peds/hr)	PED BUTTON Y/N	SEC	ARR TYPE
B	0	2	N	0	0	0.85	0	N	0.0	3
B	0	2	N	0	0	0.85	0	N	0.0	3
B	0	2	N	0	0	0.85	0	N	0.0	3

G E O M E T R I C S / V O L U M E S

PP	VOLUME LT	TH	RT	LANE GROUPS 1 MVM	LNS	WD	2 MVM	LNS	WD	3 MVM	LNS	WD
EB	0	613	0	T	2	24.0						
WB	0	465	29	TR	2	24.0						
SB	0	0	5	R	1	12.0						

INTERSECTION :
COLUMBUS AVE. @
CAHNER PL.
WEEKDAY PM PEAK HOUR 91 NB CBD?Y
UNSIGNALIZED
- MAJOR STREET RUNS EAST / WEST

U N S I G N A L I Z E D C R I T I C A L G A P S

APP	CRITICAL GAPS (SEC) LEFT TURN	THROUGH	RIGHT TURN
EB	5.00	---	---
WB	---	---	---
SB	6.50	---	5.50

V O L U M E A L L O C A T I O N T O L A N E S

APP	LANE 1 L	T	R	LANE 2 L	T	R	LANE 3 L	T	R
EB	0	306	0	0	307	0	0	0	0
WB	0	247	0	0	218	29	0	0	0
SB	0	0	5	0	0	0	0	0	0

U N S I G N A L I Z E D

APP		LANE 1	LANE 2	LANE 3
EB	RESERVE CAPACITY	---	---	---
	LEVEL OF SERVICE			
WB	RESERVE CAPACITY	---	---	---
	LEVEL OF SERVICE			
SB	RESERVE CAPACITY	843	---	---
	LEVEL OF SERVICE	A		

MAJOR STREET - EB/WB

RSECTION :
MBUS AVE. @
RENDON ST.
DAY AM PEAK HOUR 91 NB CBD?Y
JATED SIGNAL

TRAFFIC & ROADWAY CONDITIONS

P	GRADE (%)	HV (%)	ADJ. PKG Y/N	LN. Nm	BUSES (Nb)	PHF	CONF. PEDS (peds/hr)	PED BUTTON Y/N	SEC	ARR TYPE
B	0	2	Y	10	0	0.89	0	Y	12.5	3
B	0	2	Y	10	0	0.87	0	Y	9.2	3
B	0	0	N	0	0	0.90	0	N	0.0	3
B	0	2	N	0	0	0.89	0	Y	17.0	3

GEOMETRICS / VOLUMES

	VOLUME			LANE GROUPS 1			2			3		
OP	LT	TH	RT	MVM	LNS	WD	MVM	LNS	WD	MVM	LNS	WD
EB	0	447	29	T	1	11.0	TR	1	12.0			
NB	41	356	0	LT	1	14.0	T	1	14.0			
WB	0	0	0									
SB	47	103	130	LT	1	13.0	T	1	12.0	R	1	12.0

SIGNAL PHASING

OP	PHASE	1ST MV	2ND MV	3RD MV	PROT	PMSV	G	Y+R
EB	1	T	TR		R		62	38
NB	1	LT	T			L	62	38
SB	2	LT	T	R	R	L	32	68

HANCOCK DEVELOPMENT CA-7C

INTERSECTION :
COLUMBUS AVE. @
CLARENDON ST.
WEEKDAY AM PEAK HOUR 91 NB CBD ? Y
ACTUATED SIGNAL

V O L U M E A D J U S T M E N T

APPROACH	LANE GROUP MVM	VOLUME	FLOW RATE IN GROUP	LANE UTIL FACTOR	ADJ FLOW RATE	PROP OF TURNS LT	RT
EB	T	238	267	1.00	267	0.00	0.00
	TR	238	267	1.00	267	0.00	0.12
WB	LT	174	200	1.00	200	0.24	0.00
	T	223	256	1.00	256	0.00	0.00
NB							
SB	LT	75	84	1.00	84	0.63	0.00
	T	75	84	1.00	84	0.00	0.00
	R	130	146	1.00	146	0.00	1.00

S A T U R A T I O N F L O W

APP	MVM	IDEAL SAT FLOW	# OF LANES	ADJUSTMENT FACTORS WIDTH	H.V.	GRADE	PARK	BUS	AREA	RT	LT	ADJ. FLOW
EB	T	1800	1	0.97	0.99	1.00	1.00	1.00	0.90	1.00	1.00	1556
	TR	1800	1	1.00	0.99	1.00	0.85	1.00	0.90	0.98	1.00	1339
WB	LT	1800	1	1.07	0.99	1.00	1.00	1.00	0.90	1.00	0.81	1390
	T	1800	1	1.07	0.99	1.00	0.85	1.00	0.90	1.00	1.00	1459
NB												
SB	LT	1800	1	1.03	0.99	1.00	1.00	1.00	0.90	1.00	0.91	1503
	T	1800	1	1.00	0.99	1.00	1.00	1.00	0.90	1.00	1.00	1604
	R	1800	1	1.00	0.99	1.00	1.00	1.00	0.90	0.85	1.00	1363

HANCOCK DEVELOPMENT CA-7C

RSECTION :
MBUS AVE. @
RENDON ST.
XDAY AM PEAK HOUR 91 NB CBD ? Y
JATED SIGNAL

C A P A C I T Y A N A L Y S I S

LN GR MVM	ADJ FLOW RATE	PMSV LT FLOW	ADJ SAT FLW RT	FLOW RATIO	CRIT ?	GREEN RATIO	LN GR CAPACITY	V/C RATIO
T	267	0	1556	0.172	N	0.620	965	0.277
TR	267	0	1339	0.199	Y	0.620	830	0.322
LT	200	0	1390	0.144	N	0.620	862	0.232
T	256	0	1459	0.175	N	0.620	905	0.283
LT	84	0	1503	0.056	N	0.320	481	0.175
T	84	0	1604	0.052	N	0.320	513	0.164
R	146	0	1363	0.107	Y	0.320	436	0.335

LE LENGTH : 100.0 SUM OF CRITICAL LANES' FLOW RATIOS : 0.306
S TIME PER CYCLE : 6 INTERSECTION V/C : 0.326

L E V E L O F S E R V I C E

LN GR MVM	V/C RATIO	GREEN RATIO	CYC LEN	1st DELAY	LN GR CAP	2nd DELAY	PF	LN GR DELAY	LN GR LOS	APP DELAY	APP LOS
T	0.277	0.620	100	6.6	965	0.0	0.85	5.6	B		
TR	0.322	0.620	100	6.9	830	0.1	0.85	5.9	B	5.7	B
LT	0.232	0.620	100	6.4	862	0.0	0.85	5.4	B		
T	0.283	0.620	100	6.7	905	0.0	0.85	5.7	B	5.6	B
LT	0.175	0.320	100	18.6	481	0.0	0.85	15.8	C		
T	0.164	0.320	100	18.5	513	0.0	0.85	15.7	C		
R	0.335	0.320	100	19.7	436	0.2	0.85	16.9	C	16.3	C

INTERSECTION DELAY : 8.2 secs/veh
LEVEL OF SERVICE : B

INTERSECTION :
COLUMBUS AVE. @
CLARENDON ST.
WEEKDAY PM PEAK HOUR 91 NB CBD?Y
ACTUATED SIGNAL

T R A F F I C & R O A D W A Y C O N D I T I O N S

APP	GRADE (%)	HV (%)	ADJ. PKG LN. Y/N	Nm	BUSES (Nb)	PHF	CONF. PEDS (peds/hr)	PED BUTTON Y/N	SEC	ARR TYPE
EB	0	8	Y	10	0	0.89	0	Y	12.5	3
WB	0	4	Y	10	0	0.87	0	Y	9.2	3
NB	0	0	N	0	0	0.90	0	N	0.0	3
SB	0	0	N	0	0	0.89	0	Y	17.0	3

G E O M E T R I C S / V O L U M E S

APP	VOLUME LT	TH	RT	LANE GROUPS 1 MVM	LNS	WD	2 MVM	LNS	WD	3 MVM	LNS	WD
EB	0	332	58	T	1	11.0	TR	1	12.0			
WB	55	415	0	LT	1	14.0	T	1	14.0			
NB	0	0	0									
SB	281	463	243	LT	1	13.0	T	1	12.0	R	1	12.0

S I G N A L P H A S I N G

APP	PHASE	1ST MV	2ND MV	3RD MV	PROT	PMSV	G	Y+R
EB	1	T	TR		R		54	46
WB	1	LT	T			L	54	46
SB	2	LT	T	R	R	L	40	60

HANCOCK DEVELOPMENT CA-7D

RSECTION :
MBUS AVE. @
RENDON ST.
DAY PM PEAK HOUR 91 NB CBD ? Y
JATED SIGNAL

V O L U M E A D J U S T M E N T

ROACH	LANE GROUP MVM	FLOW RATE VOLUME	FLOW RATE IN GROUP	LANE UTIL FACTOR	ADJ FLOW RATE	PROP OF TURNS LT	PROP OF TURNS RT
	T	195	219	1.00	219	0.00	0.00
	TR	195	219	1.00	219	0.00	0.30
	LT	210	241	1.00	241	0.26	0.00
	T	260	299	1.00	299	0.00	0.00
	LT	321	361	1.00	361	0.88	0.00
	T	423	475	1.00	475	0.00	0.00
	R	243	273	1.00	273	0.00	1.00

S A T U R A T I O N F L O W

MVM	IDEAL SAT FLOW	# OF LANES	ADJUSTMENT FACTORS WIDTH	H.V.	GRADE	PARK	BUS	AREA	RT	LT	ADJ. FLOW
T	1800	1	0.97	0.97	1.00	1.00	1.00	0.90	1.00	1.00	1524
TR	1800	1	1.00	0.97	1.00	0.85	1.00	0.90	0.96	1.00	1276
LT	1800	1	1.07	0.98	1.00	1.00	1.00	0.90	1.00	0.83	1410
T	1800	1	1.07	0.98	1.00	0.85	1.00	0.90	1.00	1.00	1444
LT	1800	1	1.03	1.00	1.00	1.00	1.00	0.90	1.00	0.87	1452
T	1800	1	1.00	1.00	1.00	1.00	1.00	0.90	1.00	1.00	1620
R	1800	1	1.00	1.00	1.00	1.00	1.00	0.90	0.85	1.00	1377

HANCOCK DEVELOPMENT CA-7D

INTERSECTION :
COLUMBUS AVE. @
CLARENDON ST.
WEEKDAY PM PEAK HOUR 91 NB CBD ? Y
ACTUATED SIGNAL

C A P A C I T Y A N A L Y S I S

APP	LN GR MVM	ADJ FLOW RATE	PMSV LT FLOW	ADJ SAT FLW RT	FLOW RATIO	CRIT ?	GREEN RATIO	LN GR CAPACITY	V/C RATIO
EB	T	219	0	1524	0.144	N	0.540	823	0.266
	TR	219	0	1276	0.172	N	0.540	689	0.318
WB	LT	241	0	1410	0.171	N	0.540	761	0.317
	T	299	0	1444	0.207	Y	0.540	780	0.383
NB									
SB	LT	361	0	1452	0.249	N	0.400	581	0.621
	T	475	0	1620	0.293	Y	0.400	648	0.733
	R	273	0	1377	0.198	N	0.400	551	0.495

CYCLE LENGTH : 100.0 SUM OF CRITICAL LANES' FLOW RATIOS : 0.500
LOSS TIME PER CYCLE : 6 INTERSECTION V/C : 0.532

L E V E L O F S E R V I C E

APP	LN GR MVM	V/C RATIO	GREEN RATIO	CYC LEN	1st DELAY	LN GR CAP	2nd DELAY	PF	LN GR DELAY	LN GR LOS	APP DELAY	APP LOS
EB	T	0.266	0.540	100	9.4	823	0.0	0.85	8.0	B		
	TR	0.318	0.540	100	9.7	689	0.1	0.85	8.3	B	8.1	B
WB	LT	0.317	0.540	100	9.7	761	0.1	0.85	8.3	B		
	T	0.383	0.540	100	10.1	780	0.2	0.85	8.8	B	8.6	B
NB												
SB	LT	0.621	0.400	100	18.2	581	1.5	0.85	16.7	C		
	T	0.733	0.400	100	19.4	648	3.0	0.85	19.0	C		
	R	0.495	0.400	100	17.1	551	0.6	0.85	15.0	B	17.3	C

INTERSECTION DELAY : 13.1 secs/veh
LEVEL OF SERVICE : B

RSECTION :
MBUS AVE. @
MOUTH ST.
DAY AM PEAK HOUR 91 NB CBD?Y
ATED SIGNAL

TRAFFIC & ROADWAY CONDITIONS

GRADE (%)	HV (%)	ADJ. PKG Y/N	LN. Nm	BUSES (Nb)	PHF	CONF. PEDS (peds/hr)	PED BUTTON Y/N	PED BUTTON SEC	ARR TYPE
0	1	Y	10	0	0.90	0	N	0.0	3
0	1	Y	10	0	0.87	0	N	0.0	3
0	3	N	0	0	0.90	0	N	0.0	3
0	6	Y	10	0	0.78	0	N	0.0	3

GEOMETRICS / VOLUMES

P	VOLUME LT	TH	RT	LANE GROUPS 1 MVM	LNS	WD	2 MVM	LNS	WD	3 MVM	LNS	WD
EB	227	363	53	LT	1	10.0	TR	1	10.0			
NB	50	265	171	LT	1	10.0	T	1	10.0	R	1	10.0
NB	65	381	32	LTR	1	18.0						
SB	81	186	54	LTR	1	18.0						

SIGNAL PHASING

P	PHASE	1ST MV	2ND MV	3RD MV	PROT	PMSV	G	Y+R
EB	1	LT	TR		R	L	47	53
NB	1	LT	T	R	R	L	47	53
NB	2	LTR			R	L	47	53
SB	2	LTR			R	L	47	53

HANCOCK DEVELOPMENT CA-8C

INTERSECTION :
COLUMBUS AVE. @
DARTMOUTH ST.
WEEKDAY AM PEAK HOUR 91 NB CBD ? Y
ACTUATED SIGNAL

VOLUME ADJUSTMENT

APPROACH	LANE GROUP MVM	VOLUME	FLOW RATE IN GROUP	LANE UTIL FACTOR	ADJ FLOW RATE	PROP OF TURNS LT	RT
EB	LT	227	252	1.00	252	1.00	0.00
	TR	416	462	1.00	462	0.00	0.13
WB	LT	110	126	1.00	126	0.45	0.00
	T	205	236	1.00	236	0.00	0.00
	R	171	197	1.00	197	0.00	1.00
NB	LTR	478	531	1.00	531	0.14	0.07
SB	LTR	321	412	1.00	412	0.25	0.17

SATURATION FLOW

APP	MVM	IDEAL SAT FLOW	# OF LANES	ADJUSTMENT FACTORS WIDTH	H.V.	GRADE	PARK	BUS	AREA	RT	LT	ADJ. FLOW
EB	LT	1800	1	0.94	1.00	1.00	1.00	1.00	0.90	1.00	0.48	731
	TR	1800	1	0.94	1.00	1.00	0.85	1.00	0.90	0.98	1.00	1270
WB	LT	1800	1	0.94	1.00	1.00	1.00	1.00	0.90	1.00	0.44	670
	T	1800	1	0.94	1.00	1.00	1.00	1.00	0.90	1.00	1.00	1523
	R	1800	1	0.94	1.00	1.00	0.85	1.00	0.90	0.85	1.00	1100
NB	LTR	1800	1	1.20	0.99	1.00	1.00	1.00	0.90	0.89	0.90	1542
SB	LTR	1800	1	1.20	0.97	1.00	0.85	1.00	0.90	0.88	0.67	945

HANCOCK DEVELOPMENT CA-8C

RSECTION :
MBUS AVE. @
MOUTH ST.
DAY AM PEAK HOUR 91 NB CBD ? Y
ATED SIGNAL

C A P A C I T Y A N A L Y S I S

LN GR MVM	ADJ FLOW RATE	PMSV LT FLOW	ADJ SAT FLW RT	FLOW RATIO	CRIT ?	GREEN RATIO	LN GR CAPACITY	V/C RATIO
LT	252	0	731	0.345	N	0.470	344	0.733
TR	462	0	1270	0.364	Y	0.470	597	0.774
LT	126	0	670	0.188	N	0.470	315	0.400
T	236	0	1523	0.155	N	0.470	716	0.330
R	197	0	1100	0.179	N	0.470	517	0.381
LTR	531	0	1542	0.344	N	0.470	725	0.732
LTR	412	0	945	0.436	Y	0.470	444	0.928

E LENGTH : 100.0 SUM OF CRITICAL LANES' FLOW RATIOS : 0.800
TIME PER CYCLE : 6 INTERSECTION V/C : 0.851

L E V E L O F S E R V I C E

LN GR MVM	V/C RATIO	GREEN RATIO	CYC LEN	1st DELAY	LN GR CAP	2nd DELAY	PF	LN GR DELAY	LN GR LOS	APP DELAY	APP LOS
LT	0.733	0.470	100	16.3	344	5.4	0.85	18.4	C		
TR	0.774	0.470	100	16.8	597	4.4	0.85	18.0	C	18.1	C
LT	0.400	0.470	100	13.1	315	0.5	0.85	11.6	B		
T	0.330	0.470	100	12.6	716	0.1	0.85	10.8	B		
R	0.381	0.470	100	13.0	517	0.2	0.85	11.2	B	11.1	B
LTR	0.732	0.470	100	16.3	725	2.7	0.85	16.1	C	16.0	C
LTR	0.928	0.470	100	18.9	444	18.6	0.85	31.9	D	31.7	D

INTERSECTION DELAY : 18.4 secs/veh
LEVEL OF SERVICE : C

INTERSECTION :
COLUMBUS AVE. @
DARTMOUTH ST.
WEEKDAY PM PEAK HOUR 91 NB CBD?Y
ACTUATED SIGNAL

T R A F F I C & R O A D W A Y C O N D I T I O N S

APP	GRADE (%)	HV (%)	ADJ. Y/N	PKG LN. Nm	BUSES (Nb)	PHF	CONF. PEDS (peds/hr)	PED BUTTON Y/N	PED BUTTON SEC	ARR TYPE
EB	0	3	Y	10	0	0.83	0	N	0.0	3
WB	0	2	Y	10	0	0.93	0	N	0.0	3
NB	0	2	N	0	0	0.81	0	N	0.0	3
SB	0	2	Y	10	0	0.94	0	N	0.0	3

G E O M E T R I C S / V O L U M E S

APP	VOLUME LT	TH	RT	LANE GROUPS 1 MVM	LNS	WD	2 MVM	LNS	WD	3 MVM	LNS	WD
EB	157	242	27	LT	1	10.0	TR	1	10.0			
WB	190	394	74	LT	1	10.0	T	1	10.0	R	1	10.0
NB	24	312	26	LTR	1	18.0						
SB	122	320	139	LTR	1	18.0						

S I G N A L P H A S I N G

APP	PHASE	1ST MV	2ND MV	3RD MV	PROT	PMSV	G	Y+R
EB	1	LT	TR		R	L	39	61
WB	1	LT	T	R	R	L	39	61
NB	2	LTR			R	L	55	45
SB	2	LTR			R	L	55	45

RSECTION :
MBUS AVE. @
MOUTH ST.
DAY PM PEAK HOUR 91 NB CBD ? Y
ATED SIGNAL

V O L U M E A D J U S T M E N T

OACH	LANE GROUP MVM	VOLUME	FLOW RATE IN GROUP	LANE UTIL FACTOR	ADJ FLOW RATE	PROP OF TURNS LT	RT
	LT	157	189	1.00	189	1.00	0.00
	TR	269	324	1.00	324	0.00	0.10
	LT	190	204	1.00	204	1.00	0.00
	T	394	424	1.00	424	0.00	0.00
	R	74	80	1.00	80	0.00	1.00
	LTR	362	447	1.00	447	0.07	0.07
	LTR	581	618	1.00	618	0.21	0.24

S A T U R A T I O N F L O W

MVM	IDEAL SAT FLOW	# OF LANES	ADJUSTMENT FACTORS WIDTH	H.V.	GRADE	PARK	BUS	AREA	RT	LT	ADJ. FLOW
LT	1800	1	0.94	0.99	1.00	1.00	1.00	0.90	1.00	0.36	543
TR	1800	1	0.94	0.99	1.00	0.85	1.00	0.90	0.98	1.00	1262
LT	1800	1	0.94	0.99	1.00	1.00	1.00	0.90	1.00	0.37	558
T	1800	1	0.94	0.99	1.00	1.00	1.00	0.90	1.00	1.00	1508
R	1800	1	0.94	0.99	1.00	0.85	1.00	0.90	0.85	1.00	1089
LTR	1800	1	1.20	0.99	1.00	1.00	1.00	0.90	0.89	0.91	1559
LTR	1800	1	1.20	0.99	1.00	0.85	1.00	0.90	0.87	0.79	1124

HANCOCK DEVELOPMENT CA-8D

INTERSECTION :
COLUMBUS AVE. @
DARTMOUTH ST.
WEEKDAY PM PEAK HOUR 91 NB CBD ? Y
ACTUATED SIGNAL

C A P A C I T Y A N A L Y S I S

APP	LN GR MVM	ADJ FLOW RATE	PMSV LT FLOW	ADJ SAT FLW RT	FLOW RATIO	CRIT ?	GREEN RATIO	LN GR CAPACITY	V/C RATIO
EB	LT	189	0	543	0.348	N	0.390	212	0.892
	TR	324	0	1262	0.257	N	0.390	492	0.659
WB	LT	204	0	558	0.366	Y	0.390	218	0.936
	T	424	0	1508	0.281	N	0.390	588	0.721
	R	80	0	1089	0.073	N	0.390	425	0.188
NB	LTR	447	0	1559	0.287	N	0.550	857	0.522
SB	LTR	618	0	1124	0.550	Y	0.550	618	1.000

CYCLE LENGTH : 100.0 SUM OF CRITICAL LANES' FLOW RATIOS : 0.916
LOSS TIME PER CYCLE : 6 INTERSECTION V/C : 0.974

L E V E L O F S E R V I C E

APP	LN GR MVM	V/C RATIO	GREEN RATIO	CYC LEN	1st DELAY	LN GR CAP	2nd DELAY	PF	LN GR DELAY	LN GR LOS	APP DELAY	APP LOS
EB	LT	0.892	0.390	100	21.7	212	23.8	0.85	38.7	D		
	TR	0.659	0.390	100	19.0	492	2.3	0.85	18.1	C	25.6	D
WB	LT	0.936	0.390	100	22.3	218	31.2	0.85	45.5	E		
	T	0.721	0.390	100	19.7	588	3.0	0.85	19.3	C		
	R	0.188	0.390	100	15.3	425	0.0	0.85	13.0	B	26.1	D
NB	LTR	0.522	0.550	100	10.8	857	0.5	0.85	9.6	B	9.6	B
SB	LTR	1.000	0.550	100	17.1	618	27.8	0.85	38.2	D	38.1	D

INTERSECTION DELAY : 26.0 secs/veh
LEVEL OF SERVICE : D

APPENDIX C

BUILD CONDITION WITH CONNECTING BRIDGE
CAPACITY ANALYSIS

ERSECTION :
RT ST. @
TMOUTH ST.
XDAY AM PEAK HOUR 91 B BB CBD?Y
JATED SIGNAL

T R A F F I C & R O A D W A Y C O N D I T I O N S

P	GRADE (%)	HV (%)	ADJ. PKG Y/N	LN. Nm	BUSES (Nb)	PHF	CONF. PEDS (peds/hr)	PED BUTTON Y/N	SEC	ARR TYPE
B	0	2	N	0	0	0.90	0	Y	18.0	3
B	0	0	N	0	0	0.90	0	Y	14.2	3
B	0	2	N	0	0	0.90	0	Y	16.5	3
B	0	0	N	0	0	0.90	0	Y	21.0	3

G E O M E T R I C S / V O L U M E S

PP	VOLUME LT	TH	RT	LANE GROUPS 1 MVM	LNS	WD	2 MVM	LNS	WD	3 MVM	LNS	WD
EB	715	1127	505	L	1	32.0	TR	3	30.0	R	1	10.0
WB	0	0	0									
NB	0	481	202	T	1	15.0	TR	1	15.0			
SB	0	0	0									

S I G N A L P H A S I N G

PP	PHASE	1ST MV	2ND MV	3RD MV	PROT	PMSV	G	Y+R
EB	1	TR	R		R		55	45
EB	8	L			L		100	0
NB	2	T	TR		R		39	61

HANCOCK DEVELOPMENT CA-1EBB

INTERSECTION :
STUART ST. @
DARTMOUTH ST.
WEEKDAY AM PEAK HOUR 91 B BB CBD ? Y
ACTUATED SIGNAL

V O L U M E A D J U S T M E N T

APPROACH	LANE MVM	GROUP VOLUME	FLOW RATE IN GROUP	LANE UTIL FACTOR	ADJ FLOW RATE	PROP OF TURNS LT	PROP OF TURNS RT
EB	L	715	794	1.00	794	1.00	0.00
	TR	1140	1267	1.00	1267	0.00	0.01
	R	492	547	1.00	547	0.00	1.00
WB							
NB	T	360	400	1.00	400	0.00	0.00
	TR	323	359	1.00	359	0.00	0.63
SB							

S A T U R A T I O N F L O W

APP	MVM	IDEAL SAT FLOW	# OF LANES	ADJUSTMENT FACTORS WIDTH	H.V.	GRADE	PARK	BUS	AREA	RT	LT	ADJ. FLOW
EB	L	1800	1	1.66	0.99	1.00	1.00	1.00	0.90	1.00	0.95	2529
	TR	1800	3	0.94	0.99	1.00	1.00	1.00	0.90	1.00	1.00	4516
	R	1800	1	0.94	0.99	1.00	1.00	1.00	0.90	0.85	1.00	1281
WB												
NB	T	1800	1	1.10	0.99	1.00	1.00	1.00	0.90	1.00	1.00	1764
	TR	1800	1	1.10	0.99	1.00	1.00	1.00	0.90	0.91	1.00	1597
SB												

HANCOCK DEVELOPMENT CA-1EBB

RSECTION :
RT ST. @
MOUTH ST.
DAY AM PEAK HOUR 91 B BB CBD ? Y
ATED SIGNAL

C A P A C I T Y A N A L Y S I S

LN GR MVM	ADJ FLOW RATE	PMSV LT FLOW	ADJ SAT FLW RT	FLOW RATIO	CRIT ?	GREEN RATIO	LN GR CAPACITY	V/C RATIO
L	794	0	2529	0.314	N	1.000	2529	0.314
TR	1267	0	4516	0.281	N	0.550	2484	0.510
R	547	0	1281	0.427	Y	0.550	705	0.776
T	400	0	1764	0.227	Y	0.390	688	0.581
TR	359	0	1597	0.225	N	0.390	623	0.576

E LENGTH : 100.0 SUM OF CRITICAL LANES' FLOW RATIOS : 0.654
TIME PER CYCLE : 6 INTERSECTION V/C : 0.696

L E V E L O F S E R V I C E

LN GR MVM	V/C RATIO	GREEN RATIO	CYC LEN	1st DELAY	LN GR CAP	2nd DELAY	PF	LN GR DELAY	LN GR LOS	APP DELAY	APP LOS
L	0.314	1.000	100	0.0	2529	0.0	1.00	0.0	A		
TR	0.510	0.550	100	10.7	2484	0.2	0.85	9.3	B		
R	0.776	0.550	100	13.4	705	3.8	0.85	14.6	B	7.6	B
T	0.581	0.390	100	18.3	688	0.9	0.85	16.3	C		
TR	0.576	0.390	100	18.2	623	1.0	0.85	16.3	C	16.3	C

INTERSECTION DELAY : 9.5 secs/veh
LEVEL OF SERVICE : B

INTERSECTION :
STUART ST. @
DARTMOUTH ST.
WEEKDAY PM PEAK HOUR 91 B BB CBD?Y
ACTUATED SIGNAL

T R A F F I C & R O A D W A Y C O N D I T I O N S

APP	GRADE (%)	HV (%)	ADJ. PKG Y/N	LN. Nm	BUSES (Nb)	PHF	CONF. PEDS (peds/hr)	PED BUTTON Y/N	PED BUTTON SEC	ARR TYPE
EB	0	0	N	0	0	0.90	0	Y	18.0	3
WB	0	0	N	0	0	0.90	0	Y	14.2	3
NB	0	3	N	0	0	0.90	0	Y	16.5	3
SB	0	0	N	0	0	0.90	0	Y	21.0	3

G E O M E T R I C S / V O L U M E S

APP	VOLUME LT	TH	RT	LANE GROUPS 1 MVM	LNS	WD	2 MVM	LNS	WD	3 MVM	LNS	WD
EB	1038	898	567	L	1	32.0	TR	3	30.0	R	1	10.0
WB	0	0	0									
NB	0	836	96	T	1	15.0	TR	1	15.0			
SB	0	0	0									

S I G N A L P H A S I N G

APP	PHASE	1ST MV	2ND MV	3RD MV	PROT	PMSV	G	Y+R
EB	1	TR	R		R		50	50
EB	8	L			L		100	0
NB	2	T	TR		R		44	56

HANCOCK DEVELOPMENT CA-1FBB

RSECTION :
RT ST. @
MOUTH ST.
DAY PM PEAK HOUR 91 B BB CBD ? Y
ATED SIGNAL

V O L U M E A D J U S T M E N T

OACH	LANE GROUP MVM	VOLUME	FLOW RATE IN GROUP	LANE UTIL FACTOR	ADJ FLOW RATE	PROP OF TURNS LT	RT
	L	1038	1153	1.00	1153	1.00	0.00
	TR	917	1019	1.00	1019	0.00	0.02
	R	548	609	1.00	609	0.00	1.00
	T	466	518	1.00	518	0.00	0.00
	TR	466	518	1.00	518	0.00	0.21

S A T U R A T I O N F L O W

MVM	IDEAL SAT FLOW	# OF LANES	ADJUSTMENT FACTORS WIDTH	H.V.	GRADE	PARK	BUS	AREA	RT	LT	ADJ. FLOW
L	1800	1	1.66	1.00	1.00	1.00	1.00	0.90	1.00	0.95	2555
TR	1800	3	0.94	1.00	1.00	1.00	1.00	0.90	1.00	1.00	4555
R	1800	1	0.94	1.00	1.00	1.00	1.00	0.90	0.85	1.00	1294
T	1800	1	1.10	0.99	1.00	1.00	1.00	0.90	1.00	1.00	1764
TR	1800	1	1.10	0.99	1.00	1.00	1.00	0.90	0.97	1.00	1709

HANCOCK DEVELOPMENT CA-1FBB

INTERSECTION :
STUART ST. @
DARTMOUTH ST.
WEEKDAY PM PEAK HOUR 91 B BB CBD ? Y
ACTUATED SIGNAL

C A P A C I T Y A N A L Y S I S

APP	LN GR MVM	ADJ FLOW RATE	PMSV LT FLOW	ADJ SAT FLW RT	FLOW RATIO	CRIT ?	GREEN RATIO	LN GR CAPACITY	V/C RATIO
EB	L	1153	0	2555	0.451	N	1.000	2555	0.451
	TR	1019	0	4555	0.224	N	0.500	2277	0.448
	R	609	0	1294	0.471	Y	0.500	647	0.941
WB									
NB	T	518	0	1764	0.294	N	0.440	776	0.668
	TR	518	0	1709	0.303	Y	0.440	752	0.689
SB									

CYCLE LENGTH : 100.0 SUM OF CRITICAL LANES' FLOW RATIOS : 0.774
LOSS TIME PER CYCLE : 6 INTERSECTION V/C : 0.823

L E V E L O F S E R V I C E

APP	LN GR MVM	V/C RATIO	GREEN RATIO	CYC LEN	1st DELAY	LN GR CAP	2nd DELAY	PF	LN GR DELAY	LN GR LOS	APP DELAY	APP LOS
EB	L	0.451	1.000	100	0.0	2555	0.1	1.00	0.1	A		
	TR	0.448	0.500	100	12.2	2277	0.1	0.85	10.5	B		
	R	0.941	0.500	100	17.9	647	16.0	0.85	28.8	D	10.2	B
WB												
NB	T	0.668	0.440	100	16.9	776	1.6	0.85	15.7	C		
	TR	0.689	0.440	100	17.1	752	1.9	0.85	16.1	C	15.9	C
SB												

INTERSECTION DELAY : 11.7 secs/veh
LEVEL OF SERVICE : B

RSECTION :
RT ST. @
ITY PLACE
DAY AM PEAK HOUR 91 B BB CBD?Y
GNALIZED
AJOR STREET RUNS EAST / WEST

T R A F F I C & R O A D W A Y C O N D I T I O N S

P	GRADE (%)	HV (%)	ADJ. PKG Y/N	LN. Nm	BUSES (Nb)	PHF	CONF. PEDS (peds/hr)	PED Y/N	BUTTON SEC	ARR TYPE
3	0	2	N	0	0	0.89	0	N	0.0	3
3	0	0	N	0	0	0.90	0	N	0.0	3
3	0	0	N	0	0	0.94	0	N	0.0	3
3	0	0	N	0	0	0.90	0	N	0.0	3

G E O M E T R I C S / V O L U M E S

	VOLUME			LANE GROUPS 1			2			3		
P	LT	TH	RT	MVM	LNS	WD	MVM	LNS	WD	MVM	LNS	WD
EB	46	1019	264	LTR	3	30.0						
WB	0	0	0									
NB	0	19	16	TR	1	12.0						
SB	15	8	0	LT	1	12.0						

INTERSECTION :
STUART ST. @
TRINITY PLACE
WEEKDAY AM PEAK HOUR 91 B BB CBD?Y
UNSIGNALIZED
- MAJOR STREET RUNS EAST / WEST

U N S I G N A L I Z E D C R I T I C A L G A P S

APP	CRITICAL GAPS (SEC) LEFT TURN	THROUGH	RIGHT TURN
EB	5.00	---	---
WB	5.00	---	---
NB	6.50	6.00	5.50
SB	6.50	6.00	5.50

V O L U M E A L L O C A T I O N T O L A N E S

APP	LANE 1 L	T	R	LANE 2 L	T	R	LANE 3 L	T	R
EB	46	391	0	0	446	0	0	182	264
WB	0	0	0	0	0	0	0	0	0
NB	0	19	16	0	0	0	0	0	0
SB	15	8	0	0	0	0	0	0	0

U N S I G N A L I Z E D

APP		LANE 1	LANE 2	LANE 3
EB	RESERVE CAPACITY	1153	---	---
	LEVEL OF SERVICE	A		
WB	RESERVE CAPACITY	---	---	---
	LEVEL OF SERVICE			
NB	RESERVE CAPACITY	262	---	---
	LEVEL OF SERVICE	C		
SB	RESERVE CAPACITY	147	---	---
	LEVEL OF SERVICE	D		

MAJOR STREET - EB/WB

RSECTION :
AT ST. @
ITY PLACE
DAY PM PEAK HOUR 91 B BB CBD?Y
GNALIZED
AJOR STREET RUNS EAST / WEST

T R A F F I C & R O A D W A Y C O N D I T I O N S

	GRADE (%)	HV (%)	ADJ. PKG Y/N	LN. Nm	BUSES (Nb)	PHF	CONF. PEDS (peds/hr)	PED BUTTON Y/N	SEC	ARR TYPE
(	0	5	N	0	0	0.89	0	N	0.0	3
(	0	0	N	0	0	0.90	0	N	0.0	3
(	0	0	N	0	0	0.94	0	N	0.0	3
(	0	3	N	0	0	0.90	0	N	0.0	3

G E O M E T R I C S / V O L U M E S

	VOLUME LT	TH	RT	LANE GROUPS 1 MVM	LNS	WD	2 MVM	LNS	WD	3 MVM	LNS	WD
EB	35	959	0	TR	3	30.0						
WB	0	0	0									
NB	0	96	82	TR	1	12.0						
SB	24	0	0	TR	1	12.0						

INTERSECTION :
STUART ST. @
TRINITY PLACE
WEEKDAY PM PEAK HOUR 91 B BB CBD?Y
UNSIGNALIZED
- MAJOR STREET RUNS EAST / WEST

U N S I G N A L I Z E D C R I T I C A L G A P S

APP	CRITICAL GAPS (SEC) LEFT TURN	THROUGH	RIGHT TURN
EB	5.00	---	---
WB	5.00	---	---
NB	6.50	6.00	5.50
SB	6.50	6.00	5.50

V O L U M E A L L O C A T I O N T O L A N E S

APP	LANE 1 L	T	R	LANE 2 L	T	R	LANE 3 L	T	R
EB	0	320	0	0	319	0	0	320	0
WB	0	0	0	0	0	0	0	0	0
NB	0	96	82	0	0	0	0	0	0
SB	0	0	0	0	0	0	0	0	0

U N S I G N A L I Z E D

APP		LANE 1	LANE 2	LANE 3
EB	RESERVE CAPACITY	---	---	---
	LEVEL OF SERVICE			
WB	RESERVE CAPACITY	---	---	---
	LEVEL OF SERVICE			
NB	RESERVE CAPACITY	222	---	---
	LEVEL OF SERVICE	C		
SB	RESERVE CAPACITY	---	---	---
	LEVEL OF SERVICE			

MAJOR STREET - EB/WB

RSECTION :
RT ST. @
ENDON ST.
DAY AM PEAK HOUR 91 B BB CBD?Y
ATED SIGNAL

T R A F F I C & R O A D W A Y C O N D I T I O N S

GRADE (%)	HV (%)	ADJ. Y/N	PKG LN. Nm	BUSES (Nb)	PHF	CONF. PEDS (peds/hr)	PED BUTTON Y/N	PED BUTTON SEC	ARR TYPE
0	5	Y	10	0	0.94	0	Y	12.5	3
0	0	N	0	0	0.90	0	N	0.0	3
0	0	N	0	0	0.90	0	N	0.0	3
0	3	Y	10	0	0.83	0	Y	8.5	3

G E O M E T R I C S / V O L U M E S

	VOLUME			LANE GROUPS 1			2			3		
P	LT	TH	RT	MVM	LNS	WD	MVM	LNS	WD	MVM	LNS	WD
EB	0	843	207	T	1	13.0	TR	1	13.0			
NB	0	0	0									
NB	0	0	0									
SB	180	686	0	LT	1	11.0	T	1	11.0			

S I G N A L P H A S I N G

P	PHASE	1ST MV	2ND MV	3RD MV	PROT	PMSV	G	Y+R
EB	1	T	TR		R		48	52
SB	2	LT	T		L		46	54

HANCOCK DEVELOPMENT CA-3EBB

INTERSECTION :
STUART ST. @
CLARENDON ST.
WEEKDAY AM PEAK HOUR 91 B BB CBD ? Y
ACTUATED SIGNAL

V O L U M E A D J U S T M E N T

APPROACH	LANE MVM	GROUP VOLUME	FLOW RATE IN GROUP	LANE UTIL FACTOR	ADJ FLOW RATE	PROP OF TURNS LT	PROP OF TURNS RT
EB	T	540	574	1.00	574	0.00	0.00
	TR	510	543	1.00	543	0.00	0.41
WB							
NB							
SB	LT	452	545	1.00	545	0.40	0.00
	T	414	499	1.00	499	0.00	0.00

S A T U R A T I O N F L O W

APP	MVM	IDEAL SAT FLOW	# OF LANES	ADJUSTMENT FACTORS WIDTH	H.V.	GRADE	PARK	BUS	AREA	RT	LT	ADJ. FLOW
EB	T	1800	1	1.03	0.98	1.00	1.00	1.00	0.90	1.00	1.00	1635
	TR	1800	1	1.03	0.98	1.00	0.85	1.00	0.90	0.94	1.00	1304
WB												
NB												
SB	LT	1800	1	0.97	0.99	1.00	1.00	1.00	0.90	1.00	0.94	1462
	T	1800	1	0.97	0.99	1.00	0.85	1.00	0.90	1.00	1.00	1322

HANCOCK DEVELOPMENT CA-3EBB

RSECTION :
RT ST. @
ENDON ST.
DAY AM PEAK HOUR 91 B BB CBD ? Y
IATED SIGNAL

C A P A C I T Y A N A L Y S I S

LN GR MVM	ADJ FLOW RATE	PMSV LT FLOW	ADJ SAT FLW RT	FLOW RATIO	CRIT ?	GREEN RATIO	LN GR CAPACITY	V/C RATIO
T	574	0	1635	0.351	N	0.480	785	0.731
TR	543	0	1304	0.416	Y	0.480	626	0.867
LT	545	0	1462	0.373	N	0.460	673	0.810
T	499	0	1322	0.377	Y	0.460	608	0.821

E LENGTH : 100.0 SUM OF CRITICAL LANES' FLOW RATIOS : 0.793
TIME PER CYCLE : 6 INTERSECTION V/C : 0.844

L E V E L O F S E R V I C E

LN GR MVM	V/C RATIO	GREEN RATIO	CYC LEN	1st DELAY	LN GR CAP	2nd DELAY	PF	LN GR DELAY	LN GR LOS	APP DELAY	APP LOS
T	0.731	0.480	100	15.8	785	2.4	0.85	15.5	C		
TR	0.867	0.480	100	17.6	626	8.7	0.85	22.4	C	18.8	C
LT	0.810	0.460	100	17.7	673	5.1	0.85	19.4	C		
T	0.821	0.460	100	17.8	608	6.1	0.85	20.3	C	19.8	C

INTERSECTION DELAY : 19.2 secs/veh
LEVEL OF SERVICE : C

INTERSECTION :
STUART ST. @
CLARENDON ST.
WEEKDAY PM PEAK HOUR 91 B BB CBD?Y
ACTUATED SIGNAL

T R A F F I C & R O A D W A Y C O N D I T I O N S

APP	GRADE (%)	HV (%)	ADJ. PKG LN. Y/N	Nm	BUSES (Nb)	PHF	CONF. PEDS (peds/hr)	PED BUTTON Y/N	SEC	ARR TYPE
EB	0	0	Y	10	0	0.94	0	Y	12.5	3
WB	0	0	N	0	0	0.90	0	N	0.0	3
NB	0	0	N	0	0	0.90	0	N	0.0	3
SB	0	0	Y	10	0	0.83	0	Y	8.5	3

G E O M E T R I C S / V O L U M E S

APP	VOLUME LT	TH	RT	LANE GROUPS 1 MVM	LNS	WD	2 MVM	LNS	WD	3 MVM	LNS	WD
EB	0	623	442	T	1	13.0	TR	1	13.0			
WB	0	0	0									
NB	0	0	0									
SB	92	568	0	LT	1	11.0	T	1	11.0			

S I G N A L P H A S I N G

APP	PHASE	1ST MV	2ND MV	3RD MV	PROT	PMSV	G	Y+R
EB	1	T	TR		R		48	5.2
SB	2	LT	T		L		46	5.4

HANCOCK DEVELOPMENT CA-3FBB

RSECTION :
RT ST. @
ENDON ST.
DAY PM PEAK HOUR 91 B BB CBD ? Y
JATED SIGNAL

V O L U M E A D J U S T M E N T

ROACH	LANE GROUP MVM	VOLUME	FLOW RATE IN GROUP	LANE UTIL FACTOR	ADJ FLOW RATE	PROP OF TURNS LT	RT
	T	623	663	1.00	663	0.00	0.00
	TR	442	470	1.00	470	0.00	1.00
	LT	330	398	1.00	398	0.28	0.00
	T	330	398	1.00	398	0.00	0.00

S A T U R A T I O N F L O W

MVM	IDEAL SAT FLOW	# OF LANES	ADJUSTMENT FACTORS WIDTH	H.V.	GRADE	PARK	BUS	AREA	RT	LT	ADJ. FLOW
T	1800	1	1.03	1.00	1.00	1.00	1.00	0.90	1.00	1.00	1669
TR	1800	1	1.03	1.00	1.00	0.85	1.00	0.90	0.85	1.00	1206
LT	1800	1	0.97	1.00	1.00	1.00	1.00	0.90	1.00	0.96	1505
T	1800	1	0.97	1.00	1.00	0.85	1.00	0.90	1.00	1.00	1336

HANCOCK DEVELOPMENT CA-3FBB

INTERSECTION :
STUART ST. @
CLARENDON ST.
WEEKDAY PM PEAK HOUR 91 B BB CBD ? Y
ACTUATED SIGNAL

C A P A C I T Y A N A L Y S I S

APP	LN GR MVM	ADJ FLOW RATE	PMSV LT FLOW	ADJ SAT FLW RT	FLOW RATIO	CRIT ?	GREEN RATIO	LN GR CAPACITY	V/C RATIO
EB	T	663	0	1669	0.397	Y	0.480	801	0.828
	TR	470	0	1206	0.390	N	0.480	579	0.812
WB									
NB									
SB	LT	398	0	1505	0.264	N	0.460	692	0.575
	T	398	0	1336	0.298	Y	0.460	615	0.647

CYCLE LENGTH : 100.0 SUM OF CRITICAL LANES' FLOW RATIOS : 0.695
LOSS TIME PER CYCLE : 6 INTERSECTION V/C : 0.739

L E V E L O F S E R V I C E

APP	LN GR MVM	V/C RATIO	GREEN RATIO	CYC LEN	1st DELAY	LN GR CAP	2nd DELAY	PF	LN GR DELAY	LN GR LOS	APP DELAY	APP LOS
EB	T	0.828	0.480	100	17.1	801	5.1	0.85	18.9	C		
	TR	0.812	0.480	100	16.8	579	6.0	0.85	19.4	C	19.1	C
WB												
NB												
SB	LT	0.575	0.460	100	15.1	692	0.9	0.85	13.6	B		
	T	0.647	0.460	100	15.8	615	1.7	0.85	14.9	B	14.2	B

INTERSECTION DELAY : 17.0 secs/veh
LEVEL OF SERVICE : C

RSECTION :
HOPE ST. @
ENDON ST.
DAY AM PEAK HOUR 91 B BB CBD?Y
GNALIZED
AJOR STREET RUNS NORTH / SOUTH

T R A F F I C & R O A D W A Y C O N D I T I O N S

	GRADE (%)	HV (%)	ADJ. Y/N	PKG LN. Nm	BUSES (Nb)	PHF	CONF. PEDS (peds/hr)	PED BUTTON Y/N	SEC	ARR TYPE
	0	2	N	0	0	0.85	0	N	0.0	3
	0	2	N	0	0	0.85	0	N	0.0	3
	0	2	N	0	0	0.85	0	N	0.0	3
	0	2	Y	10	0	0.85	0	N	0.0	3

G E O M E T R I C S / V O L U M E S

	VOLUME LT	TH	RT	LANE GROUPS 1 MVM	LNS	WD	2 MVM	LNS	WD	3 MVM	LNS	WD
EB	0	0	0									
WB	38	120	0	LT	1	14.0						
NB	0	0	0									
SB	0	401	492	TR	2	26.0						

INTERSECTION :
STANHOPE ST. @
CLARENDON ST.
WEEKDAY AM PEAK HOUR 91 B BB CBD?Y
UNSIGNALIZED
- MAJOR STREET RUNS NORTH / SOUTH

U N S I G N A L I Z E D C R I T I C A L G A P S

APP	CRITICAL GAPS (SEC) LEFT TURN	THROUGH	RIGHT TURN
EB	6.50	6.00	5.50
WB	6.50	6.00	5.50
NB	5.00	---	---
SB	5.00	---	---

V O L U M E A L L O C A T I O N T O L A N E S

APP	LANE 1 L	T	R	LANE 2 L	T	R	LANE 3 L	T	R
EB	0	0	0	0	0	0	0	0	0
WB	38	120	0	0	0	0	0	0	0
NB	0	0	0	0	0	0	0	0	0
SB	0	401	0	0	0	492	0	0	0

U N S I G N A L I Z E D

APP		LANE 1	LANE 2	LANE 3
EB	RESERVE CAPACITY	---	---	---
	LEVEL OF SERVICE			
WB	RESERVE CAPACITY	189	---	---
	LEVEL OF SERVICE	D		
NB	RESERVE CAPACITY	---	---	---
	LEVEL OF SERVICE			
SB	RESERVE CAPACITY	---	---	---
	LEVEL OF SERVICE			

MAJOR STREET - NB/SB

?SECTION :
WOPE ST. @
ENDON ST.
DAY PM PEAK HOUR 91 B BB CBD?Y
GNALIZED
AJOR STREET RUNS NORTH / SOUTH

T R A F F I C & R O A D W A Y C O N D I T I O N S

GRADE (%)	HV (%)	ADJ. Y/N	PKG LN. Nm	BUSES (Nb)	PHF	CONF. PEDS (peds/hr)	PED BUTTON Y/N	SEC	ARR TYPE
0	2	N	0	0	0.85	0	N	0.0	3
0	2	N	0	0	0.85	0	N	0.0	3
0	2	N	0	0	0.85	0	N	0.0	3
0	2	Y	10	0	0.85	0	N	0.0	3

G E O M E T R I C S / V O L U M E S

P	VOLUME LT	TH	RT	LANE GROUPS 1 MVM	LNS	WD	2 MVM	LNS	WD	3 MVM	LNS	WD
B	0	0	0									
B	22	38	0	LT	1	14.0						
B	0	0	0									
B	0	929	200	TR	2	26.0						

INTERSECTION :
STANHOPE ST. @
CLARENDON ST.
WEEKDAY PM PEAK HOUR 91 B BB CBD?Y
UNSIGNALIZED
- MAJOR STREET RUNS NORTH / SOUTH

U N S I G N A L I Z E D C R I T I C A L G A P S

APP	CRITICAL GAPS (SEC) LEFT TURN	THROUGH	RIGHT TURN
EB	6.50	6.00	5.50
WB	6.50	6.00	5.50
NB	5.00	---	---
SB	5.00	---	---

V O L U M E A L L O C A T I O N T O L A N E S

APP	LANE 1 L	T	R	LANE 2 L	T	R	LANE 3 L	T	R
EB	0	0	0	0	0	0	0	0	0
WB	22	38	0	0	0	0	0	0	0
NB	0	0	0	0	0	0	0	0	0
SB	0	564	0	0	365	200	0	0	0

U N S I G N A L I Z E D

APP		LANE 1	LANE 2	LANE 3
EB	RESERVE CAPACITY	---	---	---
	LEVEL OF SERVICE			
WB	RESERVE CAPACITY	170	---	---
	LEVEL OF SERVICE	D		
NB	RESERVE CAPACITY	---	---	---
	LEVEL OF SERVICE			
SB	RESERVE CAPACITY	---	---	---
	LEVEL OF SERVICE			

MAJOR STREET - NB/SB

RSECTION :
DRIVEWAY #1 @
ER PL.
DAY AM PEAK HOUR 91 B BB CBD?Y
GNALIZED
AJOR STREET RUNS NORTH / SOUTH

T R A F F I C & R O A D W A Y C O N D I T I O N S

GRADE (%)	HV (%)	ADJ. Y/N	PKG LN. Nm	BUSES (Nb)	PHF	CONF. PEDS (peds/hr)	PED BUTTON Y/N	SEC	ARR TYPE
0	2	N	0	0	0.85	0	N	0.0	3
0	2	N	0	0	0.85	0	N	0.0	3
0	2	N	0	0	0.85	0	N	0.0	3

G E O M E T R I C S / V O L U M E S

	VOLUME			LANE GROUPS 1			2			3		
LT	TH	RT	MVM	LNS	WD	MVM	LNS	WD	MVM	LNS	WD
17	0	18	L	1	12.0	R	1	12.0			
76	197	0	LT	1	12.0						
0	7	0	TR	1	12.0						

INTERSECTION :
SITE DRIVEWAY #1 @
CAHNER PL.
WEEKDAY AM PEAK HOUR 91 B BB CBD?Y
UNSIGNALIZED
- MAJOR STREET RUNS NORTH / SOUTH

U N S I G N A L I Z E D C R I T I C A L G A P S

APP	CRITICAL GAPS (SEC) LEFT TURN	THROUGH	RIGHT TURN
EB	6.50	---	5.50
NB	5.00	---	---
SB	---	---	---

V O L U M E A L L O C A T I O N T O L A N E S

APP	LANE 1 L	T	R	LANE 2 L	T	R	LANE 3 L	T	R
EB	17	0	0	0	0	18	0	0	0
NB	76	197	0	0	0	0	0	0	0
SB	0	7	0	0	0	0	0	0	0

U N S I G N A L I Z E D

APP		LANE 1	LANE 2	LANE 3
EB	RESERVE CAPACITY	612	1067	---
	LEVEL OF SERVICE	A	A	
NB	RESERVE CAPACITY	1115	---	---
	LEVEL OF SERVICE	A		
SB	RESERVE CAPACITY	---	---	---
	LEVEL OF SERVICE			

MAJOR STREET - NB/SB

RSECTION :
DRIVEWAY #1 @
ER PL.
DAY PM PEAK HOUR 91 B BB CBD?Y
GNALIZED
AJOR STREET RUNS NORTH / SOUTH

T R A F F I C & R O A D W A Y C O N D I T I O N S

GRADE (%)	HV (%)	ADJ. Y/N	PKG LN. Nm	BUSES (Nb)	PHF	CONF. PEDS (peds/hr)	PED BUTTON Y/N	SEC	ARR TYPE
0	2	N	0	0	0.85	0	N	0.0	3
0	2	N	0	0	0.85	0	N	0.0	3
0	2	N	0	0	0.85	0	N	0.0	3

G E O M E T R I C S / V O L U M E S

P	VOLUME LT	TH	RT	LANE GROUPS 1 MVM	LNS	WD	2 MVM	LNS	WD	3 MVM	LNS	WD
B	16	0	90	L	1	12.0	R	1	12.0			
B	23	29	0	LT	1	12.0						
B	0	5	34	TR	1	12.0						

INTERSECTION :
SITE DRIVEWAY #1 @
CAHNER PL.
WEEKDAY PM PEAK HOUR 91 B BB CBD?Y
UNSIGNALIZED
- MAJOR STREET RUNS NORTH / SOUTH

U N S I G N A L I Z E D C R I T I C A L G A P S

APP	CRITICAL GAPS (SEC) LEFT TURN	THROUGH	RIGHT TURN
EB	6.50	---	5.50
NB	5.00	---	---
SB	---	---	---

V O L U M E A L L O C A T I O N T O L A N E S

APP	LANE 1 L	T	R	LANE 2 L	T	R	LANE 3 L	T	R
EB	16	0	0	0	0	90	0	0	0
NB	23	29	0	0	0	0	0	0	0
SB	0	5	34	0	0	0	0	0	0

U N S I G N A L I Z E D

APP		LANE 1	LANE 2	LANE 3
EB	RESERVE CAPACITY	823	977	---
	LEVEL OF SERVICE	A	A	
NB	RESERVE CAPACITY	1131	---	---
	LEVEL OF SERVICE	A		
SB	RESERVE CAPACITY	---	---	---
	LEVEL OF SERVICE			

MAJOR STREET - NB/SB

RSECTION :
MBUS AVE. @
ER PL.
DAY AM PEAK HOUR 31 B BB CBD?Y
GNALIZED
AJOR STREET RUNS EAST / WEST

T R A F F I C & R O A D W A Y C O N D I T I O N S

GRADE (%)	HV (%)	ADJ. PKG LN. Y/N	BUSES Nm	(Nb)	PHF	CONF. PEDS (peds/hr)	PED BUTTON Y/N	SEC	ARR TYPE
0	2	N	0	0	0.85	0	N	0.0	3
0	2	N	0	0	0.85	0	N	0.0	3
0	2	N	0	0	0.85	0	N	0.0	3

G E O M E T R I C S / V O L U M E S

P	VOLUME LT	TH	RT	LANE GROUPS 1 MVM	LNS	WD	2 MVM	LNS	WD	3 MVM	LNS	WD
B	0	494	0	T	2	24.0						
B	0	390	273	TR	2	24.0						
B	0	0	25	R	1	12.0						

INTERSECTION :
COLUMBUS AVE. @
CAHNER PL.
WEEKDAY AM PEAK HOUR 91 B BB CBD?Y
UNSIGNALIZED
- MAJOR STREET RUNS EAST / WEST

U N S I G N A L I Z E D C R I T I C A L G A P S

APP	CRITICAL GAPS (SEC) LEFT TURN	THROUGH	RIGHT TURN
EB	5.00	---	---
WB	---	---	---
SB	6.50	---	5.50

V O L U M E A L L O C A T I O N T O L A N E S

APP	LANE 1 L	T	R	LANE 2 L	T	R	LANE 3 L	T	R
EB	0	247	0	0	247	0	0	0	0
WB	0	331	0	0	59	273	0	0	0
SB	0	0	25	0	0	0	0	0	0

U N S I G N A L I Z E D

APP		LANE 1	LANE 2	LANE 3
EB	RESERVE CAPACITY	---	---	---
	LEVEL OF SERVICE			
WB	RESERVE CAPACITY	---	---	---
	LEVEL OF SERVICE			
SB	RESERVE CAPACITY	859	---	---
	LEVEL OF SERVICE	A		

MAJOR STREET - EB/WB

RSECTION :
MBUS AVE. @
ER PL.
DAY PM PEAK HOUR 91 B BB CBD?Y
GNALIZED
AJOR STREET RUNS EAST / WEST

T R A F F I C & R O A D W A Y C O N D I T I O N S

GRADE (%)	HV (%)	ADJ. PKG Y/N	LN. Nm	BUSES (Nb)	PHF	CONF. PEDS (peds/hr)	PED BUTTON Y/N	SEC	ARR TYPE
0	2	N	0	0	0.85	0	N	0.0	3
0	2	N	0	0	0.85	0	N	0.0	3
0	2	N	0	0	0.85	0	N	0.0	3

G E O M E T R I C S / V O L U M E S

P	VOLUME LT	TH	RT	LANE GROUPS 1 MVM	LNS	WD	2 MVM	LNS	WD	3 MVM	LNS	WD
B	0	647	0	T	2	24.0						
B	0	465	52	TR	2	24.0						
B	0	0	95	R	1	12.0						

INTERSECTION :
COLUMBUS AVE. @
CAHNER PL.
WEEKDAY PM PEAK HOUR 91 B BB CBD?Y
UNSIGNALIZED
- MAJOR STREET RUNS EAST / WEST

U N S I G N A L I Z E D C R I T I C A L G A P S

APP	CRITICAL GAPS (SEC) LEFT TURN	THROUGH	RIGHT TURN
EB	5.00	---	---
WB	---	---	---
SB	6.50	---	5.50

V O L U M E A L L O C A T I O N T O L A N E S

APP	LANE 1 L	T	R	LANE 2 L	T	R	LANE 3 L	T	R
EB	0	323	0	0	324	0	0	0	0
WB	0	258	0	0	207	52	0	0	0
SB	0	0	95	0	0	0	0	0	0

U N S I G N A L I Z E D

APP		LANE 1	LANE 2	LANE 3
EB	RESERVE CAPACITY	---	---	---
	LEVEL OF SERVICE			
WB	RESERVE CAPACITY	---	---	---
	LEVEL OF SERVICE			
SB	RESERVE CAPACITY	751	---	---
	LEVEL OF SERVICE	A		

MAJOR STREET - EB/WB

ERSECTION :
IMBUS AVE. @
RENDON ST.
KDAY AM PEAK HOUR 91 B BB CBD?Y
UATED SIGNAL

T R A F F I C & R O A D W A Y C O N D I T I O N S

P	GRADE (%)	HV (%)	ADJ. PKG Y/N	LN. Nm	BUSES (Nb)	PHF	CONF. PEDS (peds/hr)	PED BUTTON Y/N	SEC	ARR TYPE
B	0	2	Y	10	0	0.89	0	Y	12.5	3
B	0	2	Y	10	0	0.87	0	Y	9.2	3
B	0	0	N	0	0	0.90	0	N	0.0	3
B	0	2	N	0	0	0.89	0	Y	17.0	3

G E O M E T R I C S / V O L U M E S

PP	VOLUME LT	TH	RT	LANE GROUPS 1 MVM	LNS	WD	2 MVM	LNS	WD	3 MVM	LNS	WD
EB	0	447	29	T	1	11.0	TR	1	12.0			
WB	47	368	0	LT	1	14.0	T	1	14.0			
NB	0	0	0									
SB	47	106	130	LT	1	13.0	T	1	12.0	R	1	12.0

S I G N A L P H A S I N G

PP	PHASE	1ST MV	2ND MV	3RD MV	PROT	PMSV	G	Y+R
EB	1	T	TR		R		62	38
WB	1	LT	T			L	62	38
SB	2	LT	T	R	R	L	32	68

HANCOCK DEVELOPMENT CA-7EBB

INTERSECTION :
COLUMBUS AVE. @
CLARENDON ST.
WEEKDAY AM PEAK HOUR 91 B BB CBD ? Y
ACTUATED SIGNAL

V O L U M E A D J U S T M E N T

APPROACH	LANE MVM	GROUP VOLUME	FLOW RATE IN GROUP	LANE UTIL FACTOR	ADJ FLOW RATE	PROP OF TURNS LT	PROP OF TURNS RT
EB	T	238	267	1.00	267	0.00	0.00
	TR	238	267	1.00	267	0.00	0.12
WB	LT	208	239	1.00	239	0.23	0.00
	T	207	238	1.00	238	0.00	0.00
NB							
SB	LT	77	87	1.00	87	0.61	0.00
	T	76	85	1.00	85	0.00	0.00
	R	130	146	1.00	146	0.00	1.00

S A T U R A T I O N F L O W

APP	MVM	IDEAL SAT FLOW	# OF LANES	ADJUSTMENT FACTORS WIDTH	H.V.	GRADE	PARK	BUS	AREA	RT	LT	ADJ. FLOW
EB	T	1800	1	0.97	0.99	1.00	1.00	1.00	0.90	1.00	1.00	1556
	TR	1800	1	1.00	0.99	1.00	0.85	1.00	0.90	0.98	1.00	1339
WB	LT	1800	1	1.07	0.99	1.00	1.00	1.00	0.90	1.00	0.82	1407
	T	1800	1	1.07	0.99	1.00	0.85	1.00	0.90	1.00	1.00	1459
NB												
SB	LT	1800	1	1.03	0.99	1.00	1.00	1.00	0.90	1.00	0.91	1503
	T	1800	1	1.00	0.99	1.00	1.00	1.00	0.90	1.00	1.00	1604
	R	1800	1	1.00	0.99	1.00	1.00	1.00	0.90	0.85	1.00	1363

HANCOCK DEVELOPMENT CA-7EBB

ERSECTION :
UMBUS AVE. @
RENDON ST.
KDAY AM PEAK HOUR 91 B BB CBD ? Y
UATED SIGNAL

C A P A C I T Y A N A L Y S I S

LN GR MVM	ADJ FLOW RATE	PMSV LT FLOW	ADJ SAT FLW RT	FLOW RATIO	CRIT ?	GREEN RATIO	LN GR CAPACITY	V/C RATIO
T	267	0	1556	0.172	N	0.620	965	0.277
TR	267	0	1339	0.199	Y	0.620	830	0.322
LT	239	0	1407	0.170	N	0.620	872	0.274
T	238	0	1459	0.163	N	0.620	905	0.263
LT	87	0	1503	0.058	N	0.320	481	0.181
T	85	0	1604	0.053	N	0.320	513	0.166
R	146	0	1363	0.107	Y	0.320	436	0.335

LE LENGTH : 100.0 SUM OF CRITICAL LANES' FLOW RATIOS : 0.306
S TIME PER CYCLE : 6 INTERSECTION V/C : 0.326

L E V E L O F S E R V I C E

LN GR MVM	V/C RATIO	GREEN RATIO	CYC LEN	1st DELAY	LN GR CAP	2nd DELAY	PF	LN GR DELAY	LN GR LOS	APP DELAY	APP LOS
T	0.277	0.620	100	6.6	965	0.0	0.85	5.6	B		
TR	0.322	0.620	100	6.9	830	0.1	0.85	5.9	B	5.7	B
LT	0.274	0.620	100	6.6	872	0.0	0.85	5.6	B		
T	0.263	0.620	100	6.6	905	0.0	0.85	5.6	B	5.6	B
LT	0.181	0.320	100	18.7	481	0.0	0.85	15.9	C		
T	0.166	0.320	100	18.6	513	0.0	0.85	15.8	C		
R	0.335	0.320	100	19.7	436	0.2	0.85	16.9	C	16.3	C

INTERSECTION DELAY : 8.2 secs/veh
LEVEL OF SERVICE : B

HANCOCK DEVELOPMENT CA-7FBB

INTERSECTION :
COLUMBUS AVE. @
CLARENDON ST.
WEEKDAY PM PEAK HOUR 91 B BB CBD?Y
ACTUATED SIGNAL

T R A F F I C & R O A D W A Y C O N D I T I O N S

APP	GRADE (%)	HV (%)	ADJ. PKG LN. Y/N	ADJ. PKG LN. Nm	BUSES (Nb)	PHF	CONF. PEDS (peds/hr)	PED BUTTON Y/N	PED BUTTON SEC	ARR TYPE
EB	0	8	Y	10	0	0.89	0	Y	12.5	3
WB	0	4	Y	10	0	0.87	0	Y	9.2	3
NB	0	0	N	0	0	0.90	0	N	0.0	3
SB	0	0	N	0	0	0.89	0	Y	17.0	3

G E O M E T R I C S / V O L U M E S

APP	VOLUME LT	VOLUME TH	VOLUME RT	LANE GROUPS 1 MVM	1 LNS	1 WD	2 MVM	2 LNS	2 WD	3 MVM	3 LNS	3 WD
EB	0	363	58	T	1	11.0	TR	1	12.0			
WB	118	442	0	LT	1	14.0	T	1	14.0			
NB	0	0	0									
SB	284	463	309	LT	1	13.0	T	1	12.0	R	1	12.0

S I G N A L P H A S I N G

APP	PHASE	1ST MV	2ND MV	3RD MV	PROT	PMSV	G	Y+R
EB	1	T	TR		R		54	46
WB	1	LT	T			L	54	46
SB	2	LT	T	R	R	L	40	60

HANCOCK DEVELOPMENT CA-7FBB

RSECTION :
MBUS AVE. @
RENDON ST.
KDAY PM PEAK HOUR 91 B BB CBD ? Y
JATED SIGNAL

V O L U M E A D J U S T M E N T

ROACH	LANE GROUP MVM	VOLUME	FLOW RATE IN GROUP	LANE UTIL FACTOR	ADJ FLOW RATE	PROP OF TURNS LT	RT
	T	211	237	1.00	237	0.00	0.00
	TR	210	236	1.00	236	0.00	0.28
	LT	256	294	1.00	294	0.46	0.00
	T	304	349	1.00	349	0.00	0.00
	LT	374	420	1.00	420	0.76	0.00
	T	373	419	1.00	419	0.00	0.00
	R	309	347	1.00	347	0.00	1.00

S A T U R A T I O N F L O W

MVM	IDEAL SAT FLOW	# OF LANES	ADJUSTMENT FACTORS WIDTH	H.V.	GRADE	PARK	BUS	AREA	RT	LT	ADJ. FLOW
T	1800	1	0.97	0.97	1.00	1.00	1.00	0.90	1.00	1.00	1524
TR	1800	1	1.00	0.97	1.00	0.85	1.00	0.90	0.96	1.00	1280
LT	1800	1	1.07	0.98	1.00	1.00	1.00	0.90	1.00	0.70	1189
T	1800	1	1.07	0.98	1.00	0.85	1.00	0.90	1.00	1.00	1444
LT	1800	1	1.03	1.00	1.00	1.00	1.00	0.90	1.00	0.89	1485
T	1800	1	1.00	1.00	1.00	1.00	1.00	0.90	1.00	1.00	1620
R	1800	1	1.00	1.00	1.00	1.00	1.00	0.90	0.85	1.00	1377

HANCOCK DEVELOPMENT CA-7FBB

INTERSECTION :
COLUMBUS AVE. @
CLARENDON ST.
WEEKDAY PM PEAK HOUR 91 B BB CBD ? Y
ACTUATED SIGNAL

C A P A C I T Y A N A L Y S I S

APP	LN GR MVM	ADJ FLOW RATE	PMSV LT FLOW	ADJ SAT FLW RT	FLOW RATIO	CRIT ?	GREEN RATIO	LN GR CAPACITY	V/C RATIO
EB	T	237	0	1524	0.156	N	0.540	823	0.288
	TR	236	0	1280	0.184	N	0.540	691	0.342
WB	LT	294	0	1189	0.247	Y	0.540	642	0.458
	T	349	0	1444	0.242	N	0.540	780	0.447
NB									
SB	LT	420	0	1485	0.283	Y	0.400	594	0.707
	T	419	0	1620	0.259	N	0.400	648	0.647
	R	347	0	1377	0.252	N	0.400	551	0.630

CYCLE LENGTH : 100.0 SUM OF CRITICAL LANES' FLOW RATIOS : 0.530
LOSS TIME PER CYCLE : 6 INTERSECTION V/C : 0.564

L E V E L O F S E R V I C E

APP	LN GR MVM	V/C RATIO	GREEN RATIO	CYC LEN	1st DELAY	LN GR CAP	2nd DELAY	PF	LN GR DELAY	LN GR LOS	APP DELAY	APP LOS
EB	T	0.288	0.540	100	9.5	823	0.1	0.85	8.2	B		
	TR	0.342	0.540	100	9.9	691	0.1	0.85	8.5	B	8.3	B
WB	LT	0.458	0.540	100	10.7	642	0.4	0.85	9.4	B		
	T	0.447	0.540	100	10.6	780	0.3	0.85	9.3	B	9.3	B
NB												
SB	LT	0.707	0.400	100	19.1	594	2.7	0.85	18.5	C		
	T	0.647	0.400	100	18.5	648	1.6	0.85	17.1	C		
	R	0.630	0.400	100	18.3	551	1.6	0.85	16.9	C	17.5	C

INTERSECTION DELAY : 13.3 secs/veh
LEVEL OF SERVICE : B

ERSECTION :
MBUS AVE. @
TMOUTH ST.
KDAY AM PEAK HOUR 91 B BB CBD?Y
JATED SIGNAL

T R A F F I C & R O A D W A Y C O N D I T I O N S

P	GRADE (%)	HV (%)	ADJ. PKG Y/N	LN. Nm	BUSES (Nb)	PHF	CONF. PEDS (peds/hr)	PED BUTTON Y/N	SEC	ARR TYPE
B	0	1	Y	10	0	0.90	0	N	0.0	3
B	0	1	Y	10	0	0.87	0	N	0.0	3
B	0	3	N	0	0	0.90	0	N	0.0	3
B	0	6	Y	10	0	0.78	0	N	0.0	3

G E O M E T R I C S / V O L U M E S

PP	VOLUME LT	TH	RT	LANE GROUPS 1 MVM	LNS	WD	2 MVM	LNS	WD	3 MVM	LNS	WD
EB	275	363	53	LT	1	10.0	TR	1	10.0			
WB	50	272	176	LT	1	10.0	T	1	10.0	R	1	10.0
NB	65	381	32	LTR	1	18.0						
SB	81	186	54	LTR	1	18.0						

S I G N A L P H A S I N G

PP	PHASE	1ST MV	2ND MV	3RD MV	PROT	PMSV	G	Y+R
EB	1	LT	TR		R	L	47	53
WB	1	LT	T	R	R	L	47	53
NB	2	LTR			R	L	47	53
SB	2	LTR			R	L	47	53

HANCOCK DEVELOPMENT CA-8EBB

INTERSECTION :
COLUMBUS AVE. @
DARTMOUTH ST.
WEEKDAY AM PEAK HOUR 91 B BB CBD ? Y
ACTUATED SIGNAL

V O L U M E A D J U S T M E N T

APPROACH	LANE GROUP MVM	VOLUME	FLOW RATE IN GROUP	LANE UTIL FACTOR	ADJ FLOW RATE	PROP OF TURNS LT	RT
EB	LT	275	306	1.00	306	1.00	0.00
	TR	416	462	1.00	462	0.00	0.13
WB	LT	130	149	1.00	149	0.38	0.00
	T	192	221	1.00	221	0.00	0.00
	R	176	202	1.00	202	0.00	1.00
NB	LTR	478	531	1.00	531	0.14	0.07
SB	LTR	321	412	1.00	412	0.25	0.17

S A T U R A T I O N F L O W

APP	MVM	IDEAL SAT FLOW	# OF LANES	ADJUSTMENT FACTORS WIDTH	H.V.	GRADE	PARK	BUS	AREA	RT	LT	ADJ. FLOW
EB	LT	1800	1	0.94	1.00	1.00	1.00	1.00	0.90	1.00	0.47	716
	TR	1800	1	0.94	1.00	1.00	0.85	1.00	0.90	0.98	1.00	1270
WB	LT	1800	1	0.94	1.00	1.00	1.00	1.00	0.90	1.00	0.41	624
	T	1800	1	0.94	1.00	1.00	1.00	1.00	0.90	1.00	1.00	1523
	R	1800	1	0.94	1.00	1.00	0.85	1.00	0.90	0.85	1.00	1100
NB	LTR	1800	1	1.20	0.99	1.00	1.00	1.00	0.90	0.89	0.90	1542
SB	LTR	1800	1	1.20	0.97	1.00	0.85	1.00	0.90	0.88	0.69	973

HANCOCK DEVELOPMENT CA-8EBB

TRSECTION :
AMBUS AVE. @
TMOUTH ST.
KDAY AM PEAK HOUR 91 B BB CBD ? Y
UATED SIGNAL

C A P A C I T Y A N A L Y S I S

LN GR MVM	ADJ FLOW RATE	PMSV LT FLOW	ADJ SAT FLW RT	FLOW RATIO	CRIT ?	GREEN RATIO	LN GR CAPACITY	V/C RATIO
LT	306	0	716	0.427	Y	0.470	337	0.908
TR	462	0	1270	0.364	N	0.470	597	0.774
LT	149	0	624	0.239	N	0.470	293	0.509
T	221	0	1523	0.145	N	0.470	716	0.309
R	202	0	1100	0.184	N	0.470	517	0.391
LTR	531	0	1542	0.344	N	0.470	725	0.732
LTR	412	0	973	0.423	Y	0.470	457	0.902

LE LENGTH : 100.0 SUM OF CRITICAL LANES' FLOW RATIOS : 0.850
S TIME PER CYCLE : 6 INTERSECTION V/C : 0.904

L E V E L O F S E R V I C E

LN GR MVM	V/C RATIO	GREEN RATIO	CYC LEN	1st DELAY	LN GR CAP	2nd DELAY	PF	LN GR DELAY	LN GR LOS	APP DELAY	APP LOS
LT	0.908	0.470	100	18.6	337	19.3	0.85	32.2	D		
TR	0.774	0.470	100	16.8	597	4.4	0.85	18.0	C	23.6	C
LT	0.509	0.470	100	14.0	293	1.2	0.85	12.9	B		
T	0.309	0.470	100	12.5	716	0.1	0.85	10.7	B		
R	0.391	0.470	100	13.1	517	0.3	0.85	11.4	B	11.5	B
LTR	0.732	0.470	100	16.3	725	2.7	0.85	16.1	C	16.0	C
LTR	0.902	0.470	100	18.5	457	14.8	0.85	28.3	D	28.2	D

INTERSECTION DELAY : 19.6 secs/veh
LEVEL OF SERVICE : C

INTERSECTION :
COLUMBUS AVE. @
DARTMOUTH ST.
WEEKDAY PM PEAK HOUR 91 B BB CBD?Y
ACTUATED SIGNAL

TRAFFIC & ROADWAY CONDITIONS

APP	GRADE (%)	HV (%)	ADJ. PKG LN. Y/N	Nm	BUSES (Nb)	PHF	CONF. PEDS (peds/hr)	PED BUTTON Y/N	SEC	ARR TYPE
EB	0	3	Y	10	0	0.83	0	N	0.0	3
WB	0	2	Y	10	0	0.93	0	N	0.0	3
NB	0	2	N	0	0	0.81	0	N	0.0	3
SB	0	2	Y	10	0	0.94	0	N	0.0	3

GEOMETRICS / VOLUMES

APP	VOLUME LT	TH	RT	LANE GROUPS 1 MVM	LNS	WD	2 MVM	LNS	WD	3 MVM	LNS	WD
EB	157	253	27	LT	1	10.0	TR	1	10.0			
WB	190	447	114	LT	1	10.0	T	1	10.0	R	1	10.0
NB	24	312	26	LTR	1	18.0						
SB	142	320	139	LTR	1	18.0						

SIGNAL PHASING

APP	PHASE	1ST MV	2ND MV	3RD MV	PROT	PMSV	G	Y+R
EB	1	LT	TR		R	L	39	61
WB	1	LT	T	R	R	L	39	61
NB	2	LTR			R	L	55	45
SB	2	LTR			R	L	55	45

RSECTION :
MBUS AVE. @
MOUTH ST.
DAY PM PEAK HOUR 91 B BB CBD ? Y
ATED SIGNAL

V O L U M E A D J U S T M E N T

OACH	LANE GROUP MVM	GROUP VOLUME	FLOW RATE IN GROUP	LANE UTIL FACTOR	ADJ FLOW RATE	PROP OF TURNS LT	RT
	LT	157	189	1.00	189	1.00	0.00
	TR	280	337	1.00	337	0.00	0.10
	LT	190	204	1.00	204	1.00	0.00
	T	447	481	1.00	481	0.00	0.00
	R	114	123	1.00	123	0.00	1.00
	LTR	362	447	1.00	447	0.07	0.07
	LTR	601	639	1.00	639	0.24	0.23

S A T U R A T I O N F L O W

MVM	IDEAL SAT FLOW	# OF LANES	ADJUSTMENT FACTORS WIDTH	H.V.	GRADE	PARK	BUS	AREA	RT	LT	ADJ. FLOW
LT	1800	1	0.94	0.99	1.00	1.00	1.00	0.90	1.00	0.31	467
TR	1800	1	0.94	0.99	1.00	0.85	1.00	0.90	0.99	1.00	1263
LT	1800	1	0.94	0.99	1.00	1.00	1.00	0.90	1.00	0.33	497
T	1800	1	0.94	0.99	1.00	1.00	1.00	0.90	1.00	1.00	1508
R	1800	1	0.94	0.99	1.00	0.85	1.00	0.90	0.85	1.00	1089
LTR	1800	1	1.20	0.99	1.00	1.00	1.00	0.90	0.89	0.91	1559
LTR	1800	1	1.20	0.99	1.00	0.85	1.00	0.90	0.87	0.77	1096

HANCOCK DEVELOPMENT CA-8FBB

INTERSECTION :
COLUMBUS AVE. @
DARTMOUTH ST.
WEEKDAY PM PEAK HOUR 91 B BB CBD ? Y
ACTUATED SIGNAL

C A P A C I T Y A N A L Y S I S

APP	LN GR MVM	ADJ FLOW RATE	PMSV LT FLOW	ADJ SAT FLW RT	FLOW RATIO	CRIT ?	GREEN RATIO	LN GR CAPACITY	V/C RATIO
EB	LT	189	0	467	0.405	N	0.390	182	1.038
	TR	337	0	1263	0.267	N	0.390	493	0.684
WB	LT	204	0	497	0.410	Y	0.390	194	1.052
	T	481	0	1508	0.319	N	0.390	588	0.818
	R	123	0	1089	0.113	N	0.390	425	0.289
NB	LTR	447	0	1559	0.287	N	0.550	857	0.522
SB	LTR	639	0	1096	0.583	Y	0.550	603	1.060

CYCLE LENGTH : 100.0 SUM OF CRITICAL LANES' FLOW RATIOS : 0.993
LOSS TIME PER CYCLE : 6 INTERSECTION V/C : 1.056

L E V E L O F S E R V I C E

APP	LN GR MVM	V/C RATIO	GREEN RATIO	CYC LEN	1st DELAY	LN GR CAP	2nd DELAY	PF	LN GR DELAY	LN GR LOS	APP DELAY	APP LOS
EB	LT	1.038	0.390	100	23.8	182	63.8	0.85	74.5	F		
	TR	0.684	0.390	100	19.3	493	2.7	0.85	18.7	C	38.7	D
WB	LT	1.052	0.390	100	24.0	194	67.2	0.85	77.5	F		
	T	0.818	0.390	100	20.8	588	6.2	0.85	22.9	C		
	R	0.289	0.390	100	15.9	425	0.1	0.85	13.6	B	35.3	D
NB	LTR	0.522	0.550	100	10.8	857	0.5	0.85	9.6	B	9.6	B
SB	LTR	1.060	0.550	100	18.5	603	46.3	0.85	55.1	E	54.9	E

INTERSECTION DELAY : 36.5 secs/veh
LEVEL OF SERVICE : D

APPENDIX D

BUILD CONDITION WITHOUT CONNECTING BRIDGE
CAPACITY ANALYSIS

INTERSECTION :
STUART ST. @
DARTMOUTH ST.
WEEKDAY AM PEAK HOUR 91 B NO BR CBD?Y
ACTUATED SIGNAL

T R A F F I C & R O A D W A Y C O N D I T I O N S

APP	GRADE (%)	HV (%)	ADJ. PKG Y/N	LN. BUSES Nm	(Nb)	PHF	CONF. PEDS (peds/hr)	PED BUTTON Y/N	SEC	ARR TYPE
EB	0	2	N	0	0	0.90	0	Y	18.0	3
WB	0	0	N	0	0	0.90	0	Y	14.2	3
NB	0	2	N	0	0	0.90	0	Y	16.5	3
SB	0	0	N	0	0	0.90	0	Y	21.0	3

G E O M E T R I C S / V O L U M E S

APP	VOLUME LT	TH	RT	LANE GROUPS 1 MVM	LNS	WD	2 MVM	LNS	WD	3 MVM	LNS	WD
EB	715	1043	589	L	1	32.0	TR	3	30.0	R	1	10.0
WB	0	0	0									
NB	0	481	154	T	1	15.0	TR	1	15.0			
SB	0	0	0									

S I G N A L P H A S I N G

APP	PHASE	1ST MV	2ND MV	3RD MV	PROT	PMSV	G	Y+R
EB	1	TR	R		R		55	45
EB	8	L			L		100	0
NB	2	T	TR		R		39	61

HANCOCK DEVELOPMENT CA-1ENB

INTERSECTION :
STUART ST. @
DARTMOUTH ST.
WEEKDAY AM PEAK HOUR 91 B NO BR CBD ? Y
ACTUATED SIGNAL

V O L U M E A D J U S T M E N T

APPROACH	LANE MVM	GROUP VOLUME	FLOW RATE IN GROUP	LANE UTIL FACTOR	ADJ FLOW RATE	PROP OF TURNS LT	RT
EB	L	715	794	1.00	794	1.00	0.00
	TR	1094	1216	1.00	1216	0.00	0.05
	R	538	598	1.00	598	0.00	1.00
WB							
NB	T	318	353	1.00	353	0.00	0.00
	TR	317	352	1.00	352	0.00	0.49
SB							

S A T U R A T I O N F L O W

APP	MVM	IDEAL SAT FLOW	# OF LANES	ADJUSTMENT FACTORS WIDTH	H.V.	GRADE	PARK	BUS	AREA	RT	LT	ADJ. FLOW
EB	L	1800	1	1.66	0.99	1.00	1.00	1.00	0.90	1.00	0.95	2529
	TR	1800	3	0.94	0.99	1.00	1.00	1.00	0.90	0.99	1.00	4489
	R	1800	1	0.94	0.99	1.00	1.00	1.00	0.90	0.85	1.00	1281
WB												
NB	T	1800	1	1.10	0.99	1.00	1.00	1.00	0.90	1.00	1.00	1764
	TR	1800	1	1.10	0.99	1.00	1.00	1.00	0.90	0.93	1.00	1635
SB												

HANCOCK DEVELOPMENT CA-1ENB

INTERSECTION :
STUART ST. @
DARTMOUTH ST.
WEEKDAY AM PEAK HOUR 91 B NO BR CBD ? Y
ACTUATED SIGNAL

C A P A C I T Y A N A L Y S I S

APP	LN GR MVM	ADJ FLOW RATE	PMSV LT FLOW	ADJ SAT FLW RT	FLOW RATIO	CRIT ?	GREEN RATIO	LN GR CAPACITY	V/C RATIO
EB	L	794	0	2529	0.314	N	1.000	2529	0.314
	TR	1216	0	4489	0.271	N	0.550	2469	0.493
	R	598	0	1281	0.467	Y	0.550	705	0.848
WB									
NB	T	353	0	1764	0.200	N	0.390	688	0.513
	TR	352	0	1635	0.215	Y	0.390	638	0.552
SB									

CYCLE LENGTH : 100.0 SUM OF CRITICAL LANES' FLOW RATIOS : 0.682
LOSS TIME PER CYCLE : 6 INTERSECTION V/C : 0.726

L E V E L O F S E R V I C E

APP	LN GR MVM	V/C RATIO	GREEN RATIO	CYC LEN	1st DELAY	LN GR CAP	2nd DELAY	PF	LN GR DELAY	LN GR LOS	APP DELAY	APP LOS
EB	L	0.314	1.000	100	0.0	2529	0.0	1.00	0.0	A		
	TR	0.493	0.550	100	10.6	2469	0.1	0.85	9.1	B		
	R	0.848	0.550	100	14.4	705	6.7	0.85	17.9	C	8.3	B
WB												
NB	T	0.513	0.390	100	17.7	688	0.6	0.85	15.6	C		
	TR	0.552	0.390	100	18.0	638	0.8	0.85	16.0	C	15.8	C
SB												

INTERSECTION DELAY : 9.9 secs/veh
LEVEL OF SERVICE : B

INTERSECTION :
STUART ST. @
DARTMOUTH ST.
WEEKDAY PM PEAK HOUR 91 B NO BRI CBD?Y
ACTUATED SIGNAL

T R A F F I C & R O A D W A Y C O N D I T I O N S

APP	GRADE (%)	HV (%)	ADJ. PKG Y/N	LN. Nm	BUSES (Nb)	PHF	CONF. PEDS (peds/hr)	PED Y/N	BUTTON SEC	ARR TYPE
EB	0	0	N	0	0	0.90	0	Y	18.0	3
WB	0	0	N	0	0	0.90	0	Y	14.2	3
NB	0	3	N	0	0	0.90	0	Y	16.5	3
SB	0	0	N	0	0	0.90	0	Y	21.0	3

G E O M E T R I C S / V O L U M E S

APP	VOLUME LT	TH	RT	LANE GROUPS 1 MVM	LNS	WD	2 MVM	LNS	WD	3 MVM	LNS	WD
EB	1038	898	567	L	1	32.0	TR	3	30.0	R	1	10.0
WB	0	0	0									
NB	0	836	96	T	1	15.0	TR	1	15.0			
SB	0	0	0									

S I G N A L P H A S I N G

APP	PHASE	1ST MV	2ND MV	3RD MV	PROT	PMSV	G	Y+R
EB	1	TR	R		R		50	50
EB	8	L			L		100	0
NB	2	T	TR		R		44	56

HANCOCK DEVELOPMENT CA-1FNB

INTERSECTION :
STUART ST. @
DARTMOUTH ST.
WEEKDAY PM PEAK HOUR 91 B NO BRI CBD ? Y
ACTUATED SIGNAL

V O L U M E A D J U S T M E N T

APPROACH	LANE GROUP MVM	VOLUME	FLOW RATE IN GROUP	LANE UTIL FACTOR	ADJ FLOW RATE	PROP OF TURNS LT	RT
EB	L	1038	1153	1.00	1153	1.00	0.00
	TR	917	1019	1.00	1019	0.00	0.02
	R	548	609	1.00	609	0.00	1.00
WB							
NB	T	466	518	1.00	518	0.00	0.00
	TR	466	518	1.00	518	0.00	0.21
SB							

S A T U R A T I O N F L O W

APP	MVM	IDEAL SAT FLOW	# OF LANES	ADJUSTMENT FACTORS WIDTH	H.V.	GRADE	PARK	BUS	AREA	RT	LT	ADJ. FLOW
EB	L	1800	1	1.66	1.00	1.00	1.00	1.00	0.90	1.00	0.95	2555
	TR	1800	3	0.94	1.00	1.00	1.00	1.00	0.90	1.00	1.00	4555
	R	1800	1	0.94	1.00	1.00	1.00	1.00	0.90	0.85	1.00	1294
WB												
NB	T	1800	1	1.10	0.99	1.00	1.00	1.00	0.90	1.00	1.00	1764
	TR	1800	1	1.10	0.99	1.00	1.00	1.00	0.90	0.97	1.00	1709
SB												

HANCOCK DEVELOPMENT CA-1FNB

INTERSECTION :
STUART ST. @
DARTMOUTH ST.
WEEKDAY PM PEAK HOUR 91 B NO BRI CBD ? Y
ACTUATED SIGNAL

C A P A C I T Y A N A L Y S I S

APP	LN GR MVM	ADJ FLOW RATE	PMSV LT FLOW	ADJ SAT FLW RT	FLOW RATIO	CRIT ?	GREEN RATIO	LN GR CAPACITY	V/C RATIO
EB	L	1153	0	2555	0.451	N	1.000	2555	0.451
	TR	1019	0	4555	0.224	N	0.500	2277	0.448
	R	609	0	1294	0.471	Y	0.500	647	0.941
WB									
NB	T	518	0	1764	0.294	N	0.440	776	0.668
	TR	518	0	1709	0.303	Y	0.440	752	0.689
SB									

CYCLE LENGTH : 100.0 SUM OF CRITICAL LANES' FLOW RATIOS : 0.774
LOSS TIME PER CYCLE : 6 INTERSECTION V/C : 0.823

L E V E L O F S E R V I C E

APP	LN GR MVM	V/C RATIO	GREEN RATIO	CYC LEN	1st DELAY	LN GR CAP	2nd DELAY	PF	LN GR DELAY	LN GR LOS	APP DELAY	APP LOS
EB	L	0.451	1.000	100	0.0	2555	0.1	1.00	0.1	A		
	TR	0.448	0.500	100	12.2	2277	0.1	0.85	10.5	B		
	R	0.941	0.500	100	17.9	647	16.0	0.85	28.8	D	10.2	B
WB												
NB	T	0.668	0.440	100	16.9	776	1.6	0.85	15.7	C		
	TR	0.689	0.440	100	17.1	752	1.9	0.85	16.1	C	15.9	C
SB												

INTERSECTION DELAY : 11.7 secs/veh
LEVEL OF SERVICE : B

INTERSECTION :
STUART ST. @
TRINITY PLACE
WEEKDAY AM PEAK HOUR 91 B NO BRI CBD?Y
UNSIGNALIZED
- MAJOR STREET RUNS EAST / WEST

T R A F F I C & R O A D W A Y C O N D I T I O N S

APP	GRADE (%)	HV (%)	ADJ. PKG Y/N	LN. Nm	BUSES (Nb)	PHF	CONF. PEDS (peds/hr)	PED Y/N	BUTTON SEC	ARR TYPE
EB	0	2	N	0	0	0.89	0	N	0.0	3
WB	0	0	N	0	0	0.90	0	N	0.0	3
NB	0	0	N	0	0	0.94	0	N	0.0	3
SB	0	0	N	0	0	0.90	0	N	0.0	3

G E O M E T R I C S / V O L U M E S

APP	VOLUME LT	TH	RT	LANE GROUPS 1 MVM	LNS	WD	2 MVM	LNS	WD	3 MVM	LNS	WD
EB	46	1019	132	LTR	3	30.0						
WB	0	0	0									
NB	0	19	16	TR	1	12.0						
SB	15	8	0	LT	1	12.0						

INTERSECTION :
STUART ST. @
TRINITY PLACE
WEEKDAY AM PEAK HOUR 91 B NO BRI CBD?Y
UNSIGNALIZED
- MAJOR STREET RUNS EAST / WEST

U N S I G N A L I Z E D C R I T I C A L G A P S

APP	CRITICAL GAPS (SEC) LEFT TURN	THROUGH	RIGHT TURN
EB	5.00	---	---
WB	5.00	---	---
NB	6.50	6.00	5.50
SB	6.50	6.00	5.50

V O L U M E A L L O C A T I O N T O L A N E S

APP	LANE 1 L	T	R	LANE 2 L	T	R	LANE 3 L	T	R
EB	46	347	0	0	402	0	0	270	132
WB	0	0	0	0	0	0	0	0	0
NB	0	19	16	0	0	0	0	0	0
SB	15	8	0	0	0	0	0	0	0

U N S I G N A L I Z E D

APP		LANE 1	LANE 2	LANE 3
EB	RESERVE CAPACITY	1153	---	---
	LEVEL OF SERVICE	A		
WB	RESERVE CAPACITY	---	---	---
	LEVEL OF SERVICE			
NB	RESERVE CAPACITY	286	---	---
	LEVEL OF SERVICE	C		
SB	RESERVE CAPACITY	160	---	---
	LEVEL OF SERVICE	D		

MAJOR STREET - EB/WB

INTERSECTION :
STUART ST. @
TRINITY PLACE
WEEKDAY PM PEAK HOUR 91 B NO BRI CBD?Y
UNSIGNALIZED
- MAJOR STREET RUNS EAST / WEST

T R A F F I C & R O A D W A Y C O N D I T I O N S

APP	GRADE (%)	HV (%)	ADJ. PKG Y/N	LN. Nm	BUSES (Nb)	PHF	CONF. PEDS (peds/hr)	PED BUTTON Y/N	SEC	ARR TYPE
EB	0	5	N	0	0	0.89	0	N	0.0	3
WB	0	0	N	0	0	0.90	0	N	0.0	3
NB	0	0	N	0	0	0.94	0	N	0.0	3
SB	0	3	N	0	0	0.90	0	N	0.0	3

G E O M E T R I C S / V O L U M E S

APP	VOLUME LT	TH	RT	LANE GROUPS 1 MVM	LNS	WD	2 MVM	LNS	WD	3 MVM	LNS	WD
EB	35	959	0	TR	3	30.0						
WB	0	0	0									
NB	0	96	82	TR	1	12.0						
SB	24	0	0	TR	1	12.0						

INTERSECTION :
STUART ST. @
TRINITY PLACE
WEEKDAY PM PEAK HOUR 91 B NO BRI CBD?Y
UNSIGNALIZED
- MAJOR STREET RUNS EAST / WEST

U N S I G N A L I Z E D C R I T I C A L G A P S

APP	CRITICAL GAPS (SEC) LEFT TURN	THROUGH	RIGHT TURN
EB	5.00	---	---
WB	5.00	---	---
NB	6.50	6.00	5.50
SB	6.50	6.00	5.50

V O L U M E A L L O C A T I O N T O L A N E S

APP	LANE 1 L	T	R	LANE 2 L	T	R	LANE 3 L	T	R
EB	0	320	0	0	319	0	0	320	0
WB	0	0	0	0	0	0	0	0	0
NB	0	96	82	0	0	0	0	0	0
SB	0	0	0	0	0	0	0	0	0

U N S I G N A L I Z E D

APP		LANE 1	LANE 2	LANE 3
EB	RESERVE CAPACITY	---	---	---
	LEVEL OF SERVICE			
WB	RESERVE CAPACITY	---	---	---
	LEVEL OF SERVICE			
NB	RESERVE CAPACITY	222	---	---
	LEVEL OF SERVICE	C		
SB	RESERVE CAPACITY	---	---	---
	LEVEL OF SERVICE			

MAJOR STREET - EB/WB

INTERSECTION :
STUART ST. @
CLARENDON ST.
WEEKDAY AM PEAK HOUR 91 B NO BRI CBD?Y
ACTUATED SIGNAL

T R A F F I C & R O A D W A Y C O N D I T I O N S

APP	GRADE (%)	HV (%)	ADJ. PKG LN. Y/N	Nm	BUSES (Nb)	PHF	CONF. PEDS (peds/hr)	PED BUTTON Y/N	SEC	ARR TYPE
EB	0	5	Y	10	0	0.94	0	Y	12.5	3
WB	0	0	N	0	0	0.90	0	N	0.0	3
NB	0	0	N	0	0	0.90	0	N	0.0	3
SB	0	3	Y	10	0	0.83	0	Y	8.5	3

G E O M E T R I C S / V O L U M E S

APP	VOLUME LT	TH	RT	LANE GROUPS 1 MVM	LNS	WD	2 MVM	LNS	WD	3 MVM	LNS	WD
EB	0	838	207	T	1	13.0	TR	1	13.0			
WB	0	0	0									
NB	0	0	0									
SB	180	667	0	LT	1	11.0	T	1	11.0			

S I G N A L P H A S I N G

APP	PHASE	1ST MV	2ND MV	3RD MV	PROT	PMSV	G	Y+R
EB	1	T	TR		R		48	52
SB	2	LT	T		L		46	54

HANCOCK DEVELOPMENT CA-3ENB

INTERSECTION :
STUART ST. @
CLARENDON ST.
WEEKDAY AM PEAK HOUR 91 B NO BRI CBD ? Y
ACTUATED SIGNAL

V O L U M E A D J U S T M E N T

APPROACH	LANE GROUP MVM	VOLUME	FLOW RATE IN GROUP	LANE UTIL FACTOR	ADJ FLOW RATE	PROP OF TURNS LT	RT
EB	T	623	663	1.00	663	0.00	0.00
	TR	422	449	1.00	449	0.00	0.49
WB							
NB							
SB	LT	424	511	1.00	511	0.43	0.00
	T	423	510	1.00	510	0.00	0.00

S A T U R A T I O N F L O W

APP	MVM	IDEAL SAT FLOW	# OF LANES	ADJUSTMENT FACTORS WIDTH	H.V.	GRADE	PARK	BUS	AREA	RT	LT	ADJ. FLOW
EB	T	1800	1	1.03	0.98	1.00	1.00	1.00	0.90	1.00	1.00	1635
	TR	1800	1	1.03	0.98	1.00	0.85	1.00	0.90	0.93	1.00	1288
WB												
NB												
SB	LT	1800	1	0.97	0.99	1.00	1.00	1.00	0.90	1.00	0.94	1455
	T	1800	1	0.97	0.99	1.00	0.85	1.00	0.90	1.00	1.00	1322

HANCOCK DEVELOPMENT CA-3ENB

INTERSECTION :
STUART ST. @
CLARENDON ST.
WEEKDAY AM PEAK HOUR 91 B NO BRI CBD ? Y
ACTUATED SIGNAL

C A P A C I T Y A N A L Y S I S

APP	LN GR MVM	ADJ FLOW RATE	PMSV LT FLOW	ADJ SAT FLW RT	FLOW RATIO	CRIT ?	GREEN RATIO	LN GR CAPACITY	V/C RATIO
EB	T	663	0	1635	0.406	Y	0.480	785	0.845
	TR	449	0	1288	0.349	N	0.480	618	0.727
WB									
NB									
SB	LT	511	0	1455	0.351	N	0.460	669	0.764
	T	510	0	1322	0.386	Y	0.460	608	0.839

CYCLE LENGTH : 100.0 SUM OF CRITICAL LANES' FLOW RATIOS : 0.792
LOSS TIME PER CYCLE : 6 INTERSECTION V/C : 0.843

L E V E L O F S E R V I C E

APP	LN GR MVM	V/C RATIO	GREEN RATIO	CYC LEN	1st DELAY	LN GR CAP	2nd DELAY	PF	LN GR DELAY	LN GR LOS	APP DELAY	APP LOS
EB	T	0.845	0.480	100	17.3	785	5.9	0.85	19.7	C		
	TR	0.727	0.480	100	15.8	618	3.0	0.85	16.0	C	18.2	C
WB												
NB												
SB	LT	0.764	0.460	100	17.1	669	3.6	0.85	17.6	C		
	T	0.839	0.460	100	18.0	608	7.1	0.85	21.3	C	19.4	C

INTERSECTION DELAY : 18.7 secs/veh
LEVEL OF SERVICE : C

INTERSECTION :
STUART ST. @
CLARENDON ST.
WEEKDAY PM PEAK HOUR 91 B NO BRI CBD?Y
ACTUATED SIGNAL

T R A F F I C & R O A D W A Y C O N D I T I O N S

APP	GRADE (%)	HV (%)	ADJ. PKG Y/N	LN. Nm	BUSES (Nb)	PHF	CONF. PEDS (peds/hr)	PED BUTTON Y/N	SEC	ARR TYPE
EB	0	0	Y	10	0	0.94	0	Y	12.5	3
WB	0	0	N	0	0	0.90	0	N	0.0	3
NB	0	0	N	0	0	0.90	0	N	0.0	3
SB	0	0	Y	10	0	0.83	0	Y	8.5	3

G E O M E T R I C S / V O L U M E S

APP	VOLUME LT	TH	RT	LANE GROUPS 1 MVM	LNS	WD	2 MVM	LNS	WD	3 MVM	LNS	WD
EB	0	623	442	T	1	13.0	TR	1	13.0			
WB	0	0	0									
NB	0	0	0									
SB	92	568	0	LT	1	11.0	T	1	11.0			

S I G N A L P H A S I N G

APP	PHASE	1ST MV	2ND MV	3RD MV	PROT	PMSV	G	Y+R
EB	1	T	TR		R		48	5.2
SB	2	LT	T		L		46	5.4

HANCOCK DEVELOPMENT CA-3FNB

INTERSECTION :
STUART ST. @
CLARENDON ST.
WEEKDAY PM PEAK HOUR 91 B NO BRI CBD ? Y
ACTUATED SIGNAL

V O L U M E A D J U S T M E N T

APPROACH	LANE GROUP MVM	VOLUME	FLOW RATE IN GROUP	LANE UTIL FACTOR	ADJ FLOW RATE	PROP OF TURNS LT	RT
EB	T	613	652	1.00	652	0.00	0.00
	TR	452	481	1.00	481	0.00	0.98
WB							
NB							
SB	LT	300	361	1.00	361	0.31	0.00
	T	360	434	1.00	434	0.00	0.00

S A T U R A T I O N F L O W

APP	MVM	IDEAL SAT FLOW	# OF LANES	ADJUSTMENT FACTORS WIDTH	H.V.	GRADE	PARK	BUS	AREA	RT	LT	ADJ. FLOW
EB	T	1800	1	1.03	1.00	1.00	1.00	1.00	0.90	1.00	1.00	1669
	TR	1800	1	1.03	1.00	1.00	0.85	1.00	0.90	0.85	1.00	1210
WB												
NB												
SB	LT	1800	1	0.97	1.00	1.00	1.00	1.00	0.90	1.00	0.95	1498
	T	1800	1	0.97	1.00	1.00	0.85	1.00	0.90	1.00	1.00	1336

HANCOCK DEVELOPMENT CA-3FNB

INTERSECTION :
STUART ST. @
CLARENDON ST.
WEEKDAY PM PEAK HOUR 91 B NO BRI CBD ? Y
ACTUATED SIGNAL

C A P A C I T Y A N A L Y S I S

APP	LN GR MVM	ADJ FLOW RATE	PMSV LT FLOW	ADJ SAT FLW RT	FLOW RATIO	CRIT ?	GREEN RATIO	LN GR CAPACITY	V/C RATIO
EB	T	652	0	1669	0.391	N	0.480	801	0.814
	TR	481	0	1210	0.398	Y	0.480	581	0.828
WB									
NB									
SB	LT	361	0	1498	0.241	N	0.460	689	0.524
	T	434	0	1336	0.325	Y	0.460	615	0.706

CYCLE LENGTH : 100.0 SUM OF CRITICAL LANES' FLOW RATIOS : 0.723
LOSS TIME PER CYCLE : 6 INTERSECTION V/C : 0.769

L E V E L O F S E R V I C E

APP	LN GR MVM	V/C RATIO	GREEN RATIO	CYC LEN	1st DELAY	LN GR CAP	2nd DELAY	PF	LN GR DELAY	LN GR LOS	APP DELAY	APP LOS
EB	T	0.814	0.480	100	16.9	801	4.5	0.85	18.2	C		
	TR	0.828	0.480	100	17.1	581	6.7	0.85	20.2	C	19.0	C
WB												
NB												
SB	LT	0.524	0.460	100	14.6	689	0.6	0.85	12.9	B		
	T	0.706	0.460	100	16.4	615	2.6	0.85	16.1	C	14.6	B

INTERSECTION DELAY : 17.1 secs/veh
LEVEL OF SERVICE : C

INTERSECTION :
STANHOPE ST. @
CLARENDON ST.
WEEKDAY AM PEAK HOUR 91 B NO BRI CBD?Y
UNSIGNALIZED
- MAJOR STREET RUNS NORTH / SOUTH

T R A F F I C & R O A D W A Y C O N D I T I O N S

APP	GRADE (%)	HV (%)	ADJ. PKG Y/N	LN. Nm	BUSES (Nb)	PHF	CONF. PEDS (peds/hr)	PED BUTTON Y/N	SEC	ARR TYPE
EB	0	2	N	0	0	0.85	0	N	0.0	3
WB	0	2	N	0	0	0.85	0	N	0.0	3
NB	0	2	N	0	0	0.85	0	N	0.0	3
SB	0	2	Y	10	0	0.85	0	N	0.0	3

G E O M E T R I C S / V O L U M E S

APP	VOLUME LT	TH	RT	LANE GROUPS 1 MVM	LNS	WD	2 MVM	LNS	WD	3 MVM	LNS	WD
EB	0	0	0									
WB	38	120	0	LT	1	14.0						
NB	0	0	0									
SB	0	413	461	TR	2	26.0						

INTERSECTION :
STANHOPE ST. @
CLARENDON ST.
WEEKDAY AM PEAK HOUR 91 B NO BRI CBD?Y
UNSIGNALIZED
- MAJOR STREET RUNS NORTH / SOUTH

U N S I G N A L I Z E D C R I T I C A L G A P S

APP	CRITICAL GAPS (SEC) LEFT TURN	THROUGH	RIGHT TURN
EB	6.50	6.00	5.50
WB	6.50	6.00	5.50
NB	5.00	---	---
SB	5.00	---	---

V O L U M E A L L O C A T I O N T O L A N E S

APP	LANE 1 L	T	R	LANE 2 L	T	R	LANE 3 L	T	R
EB	0	0	0	0	0	0	0	0	0
WB	38	120	0	0	0	0	0	0	0
NB	0	0	0	0	0	0	0	0	0
SB	0	413	0	0	0	461	0	0	0

U N S I G N A L I Z E D

APP		LANE 1	LANE 2	LANE 3
EB	RESERVE CAPACITY	---	---	---
	LEVEL OF SERVICE			
WB	RESERVE CAPACITY	196	---	---
	LEVEL OF SERVICE	D		
NB	RESERVE CAPACITY	---	---	---
	LEVEL OF SERVICE			
SB	RESERVE CAPACITY	---	---	---
	LEVEL OF SERVICE			

MAJOR STREET - NB/SB

INTERSECTION :
STANHOPE ST. @
CLARENDON ST.
WEEKDAY PM PEAK HOUR 91 B NO BRI CBD?Y
UNSIGNALIZED
- MAJOR STREET RUNS NORTH / SOUTH

T R A F F I C & R O A D W A Y C O N D I T I O N S

APP	GRADE (%)	HV (%)	ADJ. PKG LN. Y/N	Nm	BUSES (Nb)	PHF	CONF. PEDS (peds/hr)	PED BUTTON Y/N	SEC	ARR TYPE
EB	0	2	N	0	0	0.85	0	N	0.0	3
WB	0	2	N	0	0	0.85	0	N	0.0	3
NB	0	2	N	0	0	0.85	0	N	0.0	3
SB	0	2	Y	10	0	0.85	0	N	0.0	3

G E O M E T R I C S / V O L U M E S

APP	VOLUME LT	TH	RT	LANE GROUPS 1 MVM	LNS	WD	2 MVM	LNS	WD	3 MVM	LNS	WD
EB	0	0	0									
WB	43	131	0	LT	1	14.0						
NB	0	0	0									
SB	0	863	200	TR	2	26.0						

INTERSECTION :
STANHOPE ST. @
CLARENDON ST.
WEEKDAY PM PEAK HOUR 91 B NO BRI CBD?Y
UNSIGNALIZED
- MAJOR STREET RUNS NORTH / SOUTH

U N S I G N A L I Z E D C R I T I C A L G A P S

APP	CRITICAL GAPS (SEC) LEFT TURN	THROUGH	RIGHT TURN
EB	6.50	6.00	5.50
WB	6.50	6.00	5.50
NB	5.00	---	---
SB	5.00	---	---

V O L U M E A L L O C A T I O N T O L A N E S

APP	LANE 1 L	T	R	LANE 2 L	T	R	LANE 3 L	T	R
EB	0	0	0	0	0	0	0	0	0
WB	43	131	0	0	0	0	0	0	0
NB	0	0	0	0	0	0	0	0	0
SB	0	531	0	0	332	200	0	0	0

U N S I G N A L I Z E D

APP		LANE 1	LANE 2	LANE 3
EB	RESERVE CAPACITY	---	---	---
	LEVEL OF SERVICE			
WB	RESERVE CAPACITY	75	---	---
	LEVEL OF SERVICE	E		
NB	RESERVE CAPACITY	---	---	---
	LEVEL OF SERVICE			
SB	RESERVE CAPACITY	---	---	---
	LEVEL OF SERVICE			

MAJOR STREET - NB/SB

INTERSECTION :
SITE DRIVEWAY #1 @
CAHNER PL.
WEEKDAY AM PEAK HOUR 91 B NO BRI CBD?Y
UNSIGNALIZED
- MAJOR STREET RUNS NORTH / SOUTH

T R A F F I C & R O A D W A Y C O N D I T I O N S

APP	GRADE (%)	HV (%)	ADJ. PKG LN. Y/N	Nm	BUSES (Nb)	PHF	CONF. PEDS (peds/hr)	PED BUTTON Y/N	SEC	ARR TYPE
EB	0	2	N	0	0	0.85	0	N	0.0	3
NB	0	2	N	0	0	0.85	0	N	0.0	3
SB	0	2	N	0	0	0.85	0	N	0.0	3

G E O M E T R I C S / V O L U M E S

APP	VOLUME LT	TH	RT	LANE GROUPS 1 MVM	LNS	WD	2 MVM	LNS	WD	3 MVM	LNS	WD
EB	17	0	18	L	1	12.0	R	1	12.0			
NB	95	197	0	LT	1	12.0						
SB	0	7	144	TR	1	12.0						

INTERSECTION :
SITE DRIVEWAY #1 @
CAHNER PL.
WEEKDAY AM PEAK HOUR 91 B NO BRI CBD?Y
UNSIGNALIZED
- MAJOR STREET RUNS NORTH / SOUTH

U N S I G N A L I Z E D C R I T I C A L G A P S

APP	CRITICAL GAPS (SEC) LEFT TURN	THROUGH	RIGHT TURN
EB	6.50	---	5.50
NB	5.00	---	---
SB	---	---	---

V O L U M E A L L O C A T I O N T O L A N E S

APP	LANE 1 L	T	R	LANE 2 L	T	R	LANE 3 L	T	R
EB	17	0	0	0	0	18	0	0	0
NB	95	197	0	0	0	0	0	0	0
SB	0	7	144	0	0	0	0	0	0

U N S I G N A L I Z E D

APP		LANE 1	LANE 2	LANE 3
EB	RESERVE CAPACITY	529	986	---
	LEVEL OF SERVICE	A	A	
NB	RESERVE CAPACITY	934	---	---
	LEVEL OF SERVICE	A		
SB	RESERVE CAPACITY	---	---	---
	LEVEL OF SERVICE			

MAJOR STREET - NB/SB

INTERSECTION :
SITE DRIVEWAY #1 @
CAHNER PL.
WEEKDAY PM PEAK HOUR 91 B NO BRI CBD?Y
UNSIGNALIZED
- MAJOR STREET RUNS NORTH / SOUTH

T R A F F I C & R O A D W A Y C O N D I T I O N S

APP	GRADE (%)	HV (%)	ADJ. PKG Y/N	LN. Nm	BUSES (Nb)	PHF	CONF. PEDS (peds/hr)	PED BUTTON Y/N	PED BUTTON SEC	ARR TYPE
EB	0	2	N	0	0	0.85	0	N	0.0	3
NB	0	2	N	0	0	0.85	0	N	0.0	3
SB	0	2	N	0	0	0.85	0	N	0.0	3

G E O M E T R I C S / V O L U M E S

APP	VOLUME LT	TH	RT	LANE GROUPS 1 MVM	LNS	WD	2 MVM	LNS	WD	3 MVM	LNS	WD
EB	130	0	135	L	1	12.0	R	1	12.0			
NB	23	29	0	LT	1	12.0						
SB	0	5	34	TR	1	12.0						

INTERSECTION :
SITE DRIVEWAY #1 @
CAHNER PL.
WEEKDAY PM PEAK HOUR 91 B NO BRI CBD?Y
UNSIGNALIZED
- MAJOR STREET RUNS NORTH / SOUTH

U N S I G N A L I Z E D C R I T I C A L G A P S

APP	CRITICAL GAPS (SEC) LEFT TURN	THROUGH	RIGHT TURN
EB	6.50	---	5.50
NB	5.00	---	---
SB	---	---	---

V O L U M E A L L O C A T I O N T O L A N E S

APP	LANE 1 L	T	R	LANE 2 L	T	R	LANE 3 L	T	R
EB	130	0	0	0	0	135	0	0	0
NB	23	29	0	0	0	0	0	0	0
SB	0	5	34	0	0	0	0	0	0

U N S I G N A L I Z E D

APP		LANE 1	LANE 2	LANE 3
EB	RESERVE CAPACITY	708	931	---
	LEVEL OF SERVICE	A	A	
NB	RESERVE CAPACITY	1131	---	---
	LEVEL OF SERVICE	A		
SB	RESERVE CAPACITY	---	---	---
	LEVEL OF SERVICE			

MAJOR STREET - NB/SB

INTERSECTION :
COLUMBUS AVE. @
CANNER PL.
WEEKDAY AM PEAK HOUR 91 B NO BRI CBD?Y
UNSIGNALIZED
- MAJOR STREET RUNS EAST / WEST

T R A F F I C & R O A D W A Y C O N D I T I O N S

APP	GRADE (%)	HV (%)	ADJ. PKG Y/N	LN. Nm	BUSES (Nb)	PHF	CONF. PEDS (peds/hr)	PED BUTTON Y/N	PED BUTTON SEC	ARR TYPE
EB	0	2	N	0	0	0.85	0	N	0.0	3
WB	0	2	N	0	0	0.85	0	N	0.0	3
SB	0	2	N	0	0	0.85	0	N	0.0	3

G E O M E T R I C S / V O L U M E S

APP	VOLUME LT	VOLUME TH	VOLUME RT	LANE GROUPS 1 MVM	1 LNS	1 WD	2 MVM	2 LNS	2 WD	3 MVM	3 LNS	3 WD
EB	0	638	0	T	2	24.0						
WB	0	390	292	TR	2	24.0						
SB	0	0	25	R	1	12.0						

INTERSECTION :
COLUMBUS AVE. @
CAHNER PL.
WEEKDAY AM PEAK HOUR 91 B NO BRI CBD?Y
UNSIGNALIZED
- MAJOR STREET RUNS EAST / WEST

U N S I G N A L I Z E D C R I T I C A L G A P S

APP	CRITICAL GAPS (SEC) LEFT TURN	THROUGH	RIGHT TURN
EB	5.00	---	---
WB	---	---	---
SB	6.50	---	5.50

V O L U M E A L L O C A T I O N T O L A N E S

APP	LANE 1 L	T	R	LANE 2 L	T	R	LANE 3 L	T	R
EB	0	319	0	0	319	0	0	0	0
WB	0	341	0	0	49	292	0	0	0
SB	0	0	25	0	0	0	0	0	0

U N S I G N A L I Z E D

APP		LANE 1	LANE 2	LANE 3
EB	RESERVE CAPACITY	---	---	---
	LEVEL OF SERVICE			
WB	RESERVE CAPACITY	---	---	---
	LEVEL OF SERVICE			
SB	RESERVE CAPACITY	859	---	---
	LEVEL OF SERVICE	A		

MAJOR STREET - EB/WB

INTERSECTION :
COLUMBUS AVE. @
CAHNER PL.
WEEKDAY PM PEAK HOUR 91 B NO BRI CBD?Y
UNSIGNALIZED
- MAJOR STREET RUNS EAST / WEST

T R A F F I C & R O A D W A Y C O N D I T I O N S

APP	GRADE (%)	HV (%)	ADJ. PKG Y/N	LN. Nm	BUSES (Nb)	PHF	CONF. PEDS (peds/hr)	PED BUTTON Y/N	PED BUTTON SEC	ARR TYPE
EB	0	2	N	0	0	0.85	0	N	0.0	3
WB	0	2	N	0	0	0.85	0	N	0.0	3
SB	0	2	N	0	0	0.85	0	N	0.0	3

G E O M E T R I C S / V O L U M E S

APP	VOLUME LT	TH	RT	LANE GROUPS 1 MVM	LNS	WD	2 MVM	LNS	WD	3 MVM	LNS	WD
EB	0	647	0	T	2	24.0						
WB	0	465	52	TR	2	24.0						
SB	0	0	140	R	1	12.0						

INTERSECTION :
COLUMBUS AVE. @
CLARENDON ST.
WEEKDAY AM PEAK HOUR 91 B NO BRI CBD?Y
ACTUATED SIGNAL

TRAFFIC & ROADWAY CONDITIONS

APP	GRADE (%)	HV (%)	ADJ. PKG LN. Y/N	Nm	BUSES (Nb)	PHF	CONF. PEDS (peds/hr)	PED BUTTON Y/N	SEC	ARR TYPE
EB	0	2	Y	10	0	0.89	0	Y	12.5	3
WB	0	2	Y	10	0	0.87	0	Y	9.2	3
NB	0	0	N	0	0	0.90	0	N	0.0	3
SB	0	2	N	0	0	0.89	0	Y	17.0	3

GEOMETRICS / VOLUMES

APP	VOLUME LT	TH	RT	LANE GROUPS 1 MVM	LNS	WD	2 MVM	LNS	WD	3 MVM	LNS	WD
EB	0	579	29	T	1	11.0	TR	1	12.0			
WB	47	368	0	LT	1	14.0	T	1	14.0			
NB	0	0	0									
SB	59	106	130	LT	1	13.0	T	1	12.0	R	1	12.0

SIGNAL PHASING

APP	PHASE	1ST MV	2ND MV	3RD MV	PROT	PMSV	G	Y+R
EB	1	T	TR		R		62	38
WB	1	LT	T			L	62	38
SB	2	LT	T	R	R	L	32	68

HANCOCK DEVELOPMENT CA-7ENB

INTERSECTION :
COLUMBUS AVE. @
CLARENDON ST.
WEEKDAY AM PEAK HOUR 91 B NO BRI CBD ? Y
ACTUATED SIGNAL

V O L U M E A D J U S T M E N T

APPROACH	LANE GROUP MVM	VOLUME	FLOW RATE IN GROUP	LANE UTIL FACTOR	ADJ FLOW RATE	PROP OF TURNS LT	RT
EB	T	304	342	1.00	342	0.00	0.00
	TR	304	342	1.00	342	0.00	0.10
WB	LT	190	218	1.00	218	0.25	0.00
	T	225	259	1.00	259	0.00	0.00
NB							
SB	LT	82	92	1.00	92	0.72	0.00
	T	83	93	1.00	93	0.00	0.00
	R	130	146	1.00	146	0.00	1.00

S A T U R A T I O N F L O W

APP	MVM	IDEAL SAT FLOW	# OF LANES	ADJUSTMENT FACTORS WIDTH	H.V.	GRADE	PARK	BUS	AREA	RT	LT	ADJ. FLOW
EB	T	1800	1	0.97	0.99	1.00	1.00	1.00	0.90	1.00	1.00	1556
	TR	1800	1	1.00	0.99	1.00	0.85	1.00	0.90	0.99	1.00	1343
WB	LT	1800	1	1.07	0.99	1.00	1.00	1.00	0.90	1.00	0.73	1253
	T	1800	1	1.07	0.99	1.00	0.85	1.00	0.90	1.00	1.00	1459
NB												
SB	LT	1800	1	1.03	0.99	1.00	1.00	1.00	0.90	1.00	0.89	1470
	T	1800	1	1.00	0.99	1.00	1.00	1.00	0.90	1.00	1.00	1604
	R	1800	1	1.00	0.99	1.00	1.00	1.00	0.90	0.85	1.00	1363

INTERSECTION :
COLUMBUS AVE. @
CLARENDON ST.
WEEKDAY AM PEAK HOUR 91 B NO BRI CBD ? Y
ACTUATED SIGNAL

C A P A C I T Y A N A L Y S I S

APP	LN GR MVM	ADJ FLOW RATE	PMSV LT FLOW	ADJ SAT FLW RT	FLOW RATIO	CRIT ?	GREEN RATIO	LN GR CAPACITY	V/C RATIO
EB	T	342	0	1556	0.220	N	0.620	965	0.354
	TR	342	0	1343	0.255	Y	0.620	833	0.411
WB	LT	218	0	1253	0.174	N	0.620	777	0.281
	T	259	0	1459	0.178	N	0.620	905	0.286
NB									
SB	LT	92	0	1470	0.063	N	0.320	470	0.196
	T	93	0	1604	0.058	N	0.320	513	0.181
	R	146	0	1363	0.107	Y	0.320	436	0.335

CYCLE LENGTH : 100.0 SUM OF CRITICAL LANES' FLOW RATIOS : 0.362
LOSS TIME PER CYCLE : 6 INTERSECTION V/C : 0.385

L E V E L O F S E R V I C E

APP	LN GR MVM	V/C RATIO	GREEN RATIO	CYC LEN	1st DELAY	LN GR CAP	2nd DELAY	PF	LN GR DELAY	LN GR LOS	APP DELAY	APP LOS
EB	T	0.354	0.620	100	7.0	965	0.1	0.85	6.0	B		
	TR	0.411	0.620	100	7.4	833	0.2	0.85	6.5	B	6.2	B
WB	LT	0.281	0.620	100	6.6	777	0.1	0.85	5.7	B		
	T	0.286	0.620	100	6.7	905	0.0	0.85	5.7	B	5.7	B
NB												
SB	LT	0.196	0.320	100	18.7	470	0.0	0.85	15.9	C		
	T	0.181	0.320	100	18.7	513	0.0	0.85	15.9	C		
	R	0.335	0.320	100	19.7	436	0.2	0.85	16.9	C	16.3	C

INTERSECTION DELAY : 8.3 secs/veh
LEVEL OF SERVICE : B

HANCOCK DEVELOPMENT CA-7FNB

INTERSECTION :
COLUMBUS AVE. @
CLARENDON ST.
WEEKDAY PM PEAK HOUR 91 B NO BRI CBD?Y
ACTUATED SIGNAL

T R A F F I C & R O A D W A Y C O N D I T I O N S

APP	GRADE (%)	HV (%)	ADJ. PKG Y/N	LN. Nm	BUSES (Nb)	PHF	CONF. PEDS (peds/hr)	PED Y/N	BUTTON SEC	ARR TYPE
EB	0	8	Y	10	0	0.89	0	Y	12.5	3
WB	0	4	Y	10	0	0.87	0	Y	9.2	3
NB	0	0	N	0	0	0.90	0	N	0.0	3
SB	0	0	N	0	0	0.89	0	Y	17.0	3

G E O M E T R I C S / V O L U M E S

	VOLUME			LANE GROUPS 1			2			3		
APP	LT	TH	RT	MVM	LNS	WD	MVM	LNS	WD	MVM	LNS	WD
EB	0	363	58	T	1	11.0	TR	1	12.0			
WB	97	508	0	LT	1	14.0	T	1	14.0			
NB	0	0	0									
SB	284	484	243	LT	1	13.0	T	1	12.0	R	1	12.0

S I G N A L P H A S I N G

APP	PHASE	1ST MV	2ND MV	3RD MV	PROT	PMSV	G	Y+R
EB	1	T	TR		R		54	46
WB	1	LT	T			L	54	46
SB	2	LT	T	R	R	L	40	60

HANCOCK DEVELOPMENT CA-7FNB

INTERSECTION :
COLUMBUS AVE. @
CLARENDON ST.
WEEKDAY PM PEAK HOUR 91 B NO BRI CBD ? Y
ACTUATED SIGNAL

V O L U M E A D J U S T M E N T

APPROACH	LANE MVM	GROUP VOLUME	FLOW RATE IN GROUP	LANE UTIL FACTOR	ADJ FLOW RATE	PROP OF LT	TURNS RT
EB	T	230	258	1.00	258	0.00	0.00
	TR	191	215	1.00	215	0.00	0.30
WB	LT	275	316	1.00	316	0.35	0.00
	T	330	379	1.00	379	0.00	0.00
NB							
SB	LT	384	431	1.00	431	0.74	0.00
	T	384	431	1.00	431	0.00	0.00
	R	243	273	1.00	273	0.00	1.00

S A T U R A T I O N F L O W

APP	MVM	IDEAL SAT FLOW	# OF LANES	ADJUSTMENT FACTORS WIDTH	H.V.	GRADE	PARK	BUS	AREA	RT	LT	ADJ. FLOW
EB	T	1800	1	0.97	0.97	1.00	1.00	1.00	0.90	1.00	1.00	1524
	TR	1800	1	1.00	0.97	1.00	0.85	1.00	0.90	0.96	1.00	1276
WB	LT	1800	1	1.07	0.98	1.00	1.00	1.00	0.90	1.00	0.76	1291
	T	1800	1	1.07	0.98	1.00	0.85	1.00	0.90	1.00	1.00	1444
NB												
SB	LT	1800	1	1.03	1.00	1.00	1.00	1.00	0.90	1.00	0.89	1485
	T	1800	1	1.00	1.00	1.00	1.00	1.00	0.90	1.00	1.00	1620
	R	1800	1	1.00	1.00	1.00	1.00	1.00	0.90	0.85	1.00	1377

HANCOCK DEVELOPMENT CA-7FNB

INTERSECTION :
COLUMBUS AVE. @
CLARENDON ST.
WEEKDAY PM PEAK HOUR 91 B NO BRI CBD ? Y
ACTUATED SIGNAL

C A P A C I T Y A N A L Y S I S

APP	LN GR MVM	ADJ FLOW RATE	PMSV LT FLOW	ADJ SAT FLW RT	FLOW RATIO	CRIT ?	GREEN RATIO	LN GR CAPACITY	V/C RATIO
EB	T	258	0	1524	0.169	N	0.540	823	0.313
	TR	215	0	1276	0.168	N	0.540	689	0.312
WB	LT	316	0	1291	0.245	N	0.540	697	0.453
	T	379	0	1444	0.262	Y	0.540	780	0.486
NB									
SB	LT	431	0	1485	0.290	Y	0.400	594	0.726
	T	431	0	1620	0.266	N	0.400	648	0.665
	R	273	0	1377	0.198	N	0.400	551	0.495

CYCLE LENGTH : 100.0 SUM OF CRITICAL LANES' FLOW RATIOS : 0.552
LOSS TIME PER CYCLE : 6 INTERSECTION V/C : 0.587

L E V E L O F S E R V I C E

APP	LN GR MVM	V/C RATIO	GREEN RATIO	CYC LEN	1st DELAY	LN GR CAP	2nd DELAY	PF	LN GR DELAY	LN GR LOS	APP DELAY	APP LOS
EB	T	0.313	0.540	100	9.7	823	0.1	0.85	8.3	B		
	TR	0.312	0.540	100	9.7	689	0.1	0.85	8.3	B	8.3	B
WB	LT	0.453	0.540	100	10.6	697	0.3	0.85	9.3	B		
	T	0.486	0.540	100	10.9	780	0.4	0.85	9.6	B	9.4	B
NB												
SB	LT	0.726	0.400	100	19.3	594	3.1	0.85	19.0	C		
	T	0.665	0.400	100	18.6	648	1.8	0.85	17.3	C		
	R	0.495	0.400	100	17.1	551	0.6	0.85	15.0	B	17.4	C

INTERSECTION DELAY : 13.1 secs/veh
LEVEL OF SERVICE : B

INTERSECTION :
COLUMBUS AVE. @
DARTMOUTH ST.
WEEKDAY AM PEAK HOUR 91 B NO BRI CBD?Y
ACTUATED SIGNAL

T R A F F I C & R O A D W A Y C O N D I T I O N S

APP	GRADE (%)	HV (%)	ADJ. PKG LN. Y/N	Nm	BUSES (Nb)	PHF	CONF. PEDS (peds/hr)	PED BUTTON Y/N	SEC	ARR TYPE
EB	0	1	Y	10	0	0.90	0	N	0.0	3
WB	0	1	Y	10	0	0.87	0	N	0.0	3
NB	0	3	N	0	0	0.90	0	N	0.0	3
SB	0	6	Y	10	0	0.78	0	N	0.0	3

G E O M E T R I C S / V O L U M E S

APP	VOLUME LT	TH	RT	LANE GROUPS 1 MVM	LNS	WD	2 MVM	LNS	WD	3 MVM	LNS	WD
EB	227	411	53	LT	1	10.0	TR	1	10.0			
WB	50	272	176	LT	1	10.0	T	1	10.0	R	1	10.0
NB	65	381	32	LTR	1	18.0						
SB	165	186	54	LTR	1	18.0						

S I G N A L P H A S I N G

APP	PHASE	1ST MV	2ND MV	3RD MV	PROT	PMSV	G	Y+R
EB	1	LT	TR		R	L	42	58
WB	1	LT	T	R	R	L	42	58
NB	2	LTR			R	L	52	48
SB	2	LTR			R	L	52	48

HANCOCK DEVELOPMENT CA-8ENB

INTERSECTION :
COLUMBUS AVE. @
DARTMOUTH ST.
WEEKDAY AM PEAK HOUR 91 B NO BRI CBD ? Y
ACTUATED SIGNAL

V O L U M E A D J U S T M E N T

APPROACH	LANE GROUP MVM	VOLUME	FLOW RATE IN GROUP	LANE UTIL FACTOR	ADJ FLOW RATE	PROP OF TURNS LT	RT
EB	LT	227	252	1.00	252	1.00	0.00
	TR	464	516	1.00	516	0.00	0.11
WB	LT	132	152	1.00	152	0.38	0.00
	T	190	218	1.00	218	0.00	0.00
	R	176	202	1.00	202	0.00	1.00
NB	LTR	478	531	1.00	531	0.14	0.07
SB	LTR	405	519	1.00	519	0.41	0.13

S A T U R A T I O N F L O W

APP	MVM	IDEAL SAT FLOW	# OF LANES	ADJUSTMENT FACTORS WIDTH	H.V.	GRADE	PARK	BUS	AREA	RT	LT	ADJ. FLOW
EB	LT	1800	1	0.94	1.00	1.00	1.00	1.00	0.90	1.00	0.46	700
	TR	1800	1	0.94	1.00	1.00	0.85	1.00	0.90	0.98	1.00	1272
WB	LT	1800	1	0.94	1.00	1.00	1.00	1.00	0.90	1.00	0.39	594
	T	1800	1	0.94	1.00	1.00	1.00	1.00	0.90	1.00	1.00	1523
	R	1800	1	0.94	1.00	1.00	0.85	1.00	0.90	0.85	1.00	1100
NB	LTR	1800	1	1.20	0.99	1.00	1.00	1.00	0.90	0.89	0.91	1559
SB	LTR	1800	1	1.20	0.97	1.00	0.85	1.00	0.90	0.88	0.69	973

HANCOCK DEVELOPMENT CA-8ENB

INTERSECTION :
COLUMBUS AVE. @
DARTMOUTH ST.
WEEKDAY AM PEAK HOUR 91 B NO BRI CBD ? Y
ACTUATED SIGNAL

C A P A C I T Y A N A L Y S I S

APP	LN GR MVM	ADJ FLOW RATE	PMSV LT FLOW	ADJ SAT FLW RT	FLOW RATIO	CRIT ?	GREEN RATIO	LN GR CAPACITY	V/C RATIO
EB	LT	252	0	700	0.360	N	0.420	294	0.857
	TR	516	0	1272	0.406	Y	0.420	534	0.966
WB	LT	152	0	594	0.256	N	0.420	249	0.610
	T	218	0	1523	0.143	N	0.420	640	0.341
	R	202	0	1100	0.184	N	0.420	462	0.437
NB	LTR	531	0	1559	0.341	N	0.520	811	0.655
SB	LTR	519	0	973	0.533	Y	0.520	506	1.026

CYCLE LENGTH : 100.0 SUM OF CRITICAL LANES' FLOW RATIOS : 0.939
LOSS TIME PER CYCLE : 6 INTERSECTION V/C : 0.999

L E V E L O F S E R V I C E

APP	LN GR MVM	V/C RATIO	GREEN RATIO	CYC LEN	1st DELAY	LN GR CAP	2nd DELAY	PF	LN GR DELAY	LN GR LOS	APP DELAY	APP LOS
EB	LT	0.857	0.420	100	20.0	294	14.7	0.85	29.5	D		
	TR	0.966	0.420	100	21.5	534	22.5	0.85	37.4	D	34.8	D
WB	LT	0.610	0.420	100	17.2	249	3.0	0.85	17.2	C		
	T	0.341	0.420	100	14.9	640	0.1	0.85	12.7	B		
	R	0.437	0.420	100	15.7	462	0.4	0.85	13.7	B	14.2	B
NB	LTR	0.655	0.520	100	13.3	811	1.4	0.85	12.5	B	12.5	B
SB	LTR	1.026	0.520	100	18.8	506	37.9	0.85	48.2	E	48.0	E

INTERSECTION DELAY : 27.8 secs/veh
LEVEL OF SERVICE : D

INTERSECTION :
COLUMBUS AVE. @
DARTMOUTH ST.
WEEKDAY PM PEAK HOUR 91 B NO BRI CBD?Y
ACTUATED SIGNAL

T R A F F I C & R O A D W A Y C O N D I T I O N S

APP	GRADE (%)	HV (%)	ADJ. PKG Y/N	LN. Nm	BUSES (Nb)	PHF	CONF. PEDS (peds/hr)	PED BUTTON Y/N	SEC	ARR TYPE
EB	0	3	Y	10	0	0.83	0	N	0.0	3
WB	0	2	Y	10	0	0.93	0	N	0.0	3
NB	0	2	N	0	0	0.81	0	N	0.0	3
SB	0	2	Y	10	0	0.94	0	N	0.0	3

G E O M E T R I C S / V O L U M E S

APP	VOLUME LT	TH	RT	LANE GROUPS 1 MVM	LNS	WD	2 MVM	LNS	WD	3 MVM	LNS	WD
EB	157	253	27	LT	1	10.0	TR	1	10.0			
WB	190	447	114	LT	1	10.0	T	1	10.0	R	1	10.0
NB	24	312	26	LTR	1	18.0						
SB	142	320	139	LTR	1	18.0						

S I G N A L P H A S I N G

APP	PHASE	1ST MV	2ND MV	3RD MV	PROT	PMSV	G	Y+R
EB	1	LT	TR		R	L	40	6Ø
WB	1	LT	T	R	R	L	40	6Ø
NB	2	LTR			R	L	54	46
SB	2	LTR			R	L	54	46

HANCOCK DEVELOPMENT CA-8FNB

INTERSECTION :
COLUMBUS AVE. @
DARTMOUTH ST.
WEEKDAY PM PEAK HOUR 91 B NO BRI CBD ? Y
ACTUATED SIGNAL

V O L U M E A D J U S T M E N T

APPROACH	LANE MVM	GROUP VOLUME	FLOW RATE IN GROUP	LANE UTIL FACTOR	ADJ FLOW RATE	PROP OF LT	TURNS RT
EB	LT	157	189	1.00	189	1.00	0.00
	TR	280	337	1.00	337	0.00	0.10
WB	LT	190	204	1.00	204	1.00	0.00
	T	447	481	1.00	481	0.00	0.00
	R	114	123	1.00	123	0.00	1.00
NB	LTR	362	447	1.00	447	0.07	0.07
SB	LTR	601	639	1.00	639	0.24	0.23

S A T U R A T I O N F L O W

APP	MVM	IDEAL SAT FLOW	# OF LANES	ADJUSTMENT FACTORS WIDTH	H.V.	GRADE	PARK	BUS	AREA	RT	LT	ADJ. FLOW
EB	LT	1800	1	0.94	0.99	1.00	1.00	1.00	0.90	1.00	0.31	467
	TR	1800	1	0.94	0.99	1.00	0.85	1.00	0.90	0.99	1.00	1263
WB	LT	1800	1	0.94	0.99	1.00	1.00	1.00	0.90	1.00	0.34	513
	T	1800	1	0.94	0.99	1.00	1.00	1.00	0.90	1.00	1.00	1508
	R	1800	1	0.94	0.99	1.00	0.85	1.00	0.90	0.85	1.00	1089
NB	LTR	1800	1	1.20	0.99	1.00	1.00	1.00	0.90	0.89	0.91	1559
SB	LTR	1800	1	1.20	0.99	1.00	0.85	1.00	0.90	0.87	0.77	1096

HANCOCK DEVELOPMENT CA-8FNB

INTERSECTION :
COLUMBUS AVE. @
DARTMOUTH ST.
WEEKDAY PM PEAK HOUR 91 B NO BRI CBD ? Y
ACTUATED SIGNAL

C A P A C I T Y A N A L Y S I S

APP	LN GR MVM	ADJ FLOW RATE	PMSV LT FLOW	ADJ SAT FLW RT	FLOW RATIO	CRIT ?	GREEN RATIO	LN GR CAPACITY	V/C RATIO
EB	LT	189	0	467	0.405	Y	0.400	187	1.011
	TR	337	0	1263	0.267	N	0.400	505	0.667
WB	LT	204	0	513	0.398	N	0.400	205	0.995
	T	481	0	1508	0.319	N	0.400	603	0.798
	R	123	0	1089	0.113	N	0.400	436	0.282
NB	LTR	447	0	1559	0.287	N	0.540	842	0.531
SB	LTR	639	0	1096	0.583	Y	0.540	592	1.079

CYCLE LENGTH : 100.0 SUM OF CRITICAL LANES' FLOW RATIOS : 0.988
LOSS TIME PER CYCLE : 6 INTERSECTION V/C : 1.051

L E V E L O F S E R V I C E

APP	LN GR MVM	V/C RATIO	GREEN RATIO	CYC LEN	1st DELAY	LN GR CAP	2nd DELAY	PF	LN GR DELAY	LN GR LOS	APP DELAY	APP LOS
EB	LT	1.011	0.400	100	23.0	187	54.0	0.85	65.4	F		
	TR	0.667	0.400	100	18.7	505	2.3	0.85	17.8	C	34.8	D
WB	LT	0.995	0.400	100	22.7	205	46.9	0.85	59.2	E		
	T	0.798	0.400	100	20.1	603	5.2	0.85	21.5	C		
	R	0.282	0.400	100	15.4	436	0.1	0.85	13.2	B	29.8	D
NB	LTR	0.531	0.540	100	11.3	842	0.5	0.85	10.0	B	10.0	B
SB	LTR	1.079	0.540	100	19.3	592	53.8	0.85	62.1	F	61.9	F

INTERSECTION DELAY : 35.7 secs/veh
LEVEL OF SERVICE : D

APPENDIX E

2010 NO-BUILD CONDITION ALTERNATES P-3A AND P-3B
CAPACITY ANALYSIS

INTERSECTION :
COLUMBUS AVE. @
CLARENDON ST.
WEEKDAY PM PEAK HOUR 10 HER EXT. CBD?Y
ACTUATED SIGNAL

T R A F F I C & R O A D W A Y C O N D I T I O N S

APP	GRADE (%)	HV (%)	ADJ. PKG Y/N	LN. Nm	BUSES (Nb)	PHF	CONF. PEDS (peds/hr)	PED BUTTON Y/N	SEC	ARR TYPE
EB	0	2	Y	10	0	0.89	0	Y	12.5	3
WB	0	2	Y	10	0	0.87	0	Y	9.2	3
NB	0	0	N	0	0	0.90	0	N	0.0	3
SB	0	2	N	0	0	0.89	0	Y	17.0	3

G E O M E T R I C S / V O L U M E S

APP	VOLUME LT	TH	RT	LANE GROUPS 1 MVM	LNS	WD	2 MVM	LNS	WD	3 MVM	LNS	WD
EB	0	497	58	T	1	11.0	TR	1	12.0			
WB	135	965	0	LT	1	14.0	T	1	14.0			
NB	0	0	0									
SB	0	273	213	T	2	25.0	R	1	12.0			

S I G N A L P H A S I N G

APP	PHASE	1ST MV	2ND MV	3RD MV	PROT	PMSV	G	Y+R
EB	1	T	TR		R		58	42
WB	1	LT	T			L	58	42
SB	2	T	R		R		36	64

HANCOCK DEVELOPMENT 3AHERB

INTERSECTION :
COLUMBUS AVE. @
CLARENDON ST.
WEEKDAY PM PEAK HOUR 10 HER EXT. CBD ? Y
ACTUATED SIGNAL

V O L U M E A D J U S T M E N T

APPROACH	LANE GROUP MVM	VOLUME	FLOW RATE IN GROUP	LANE UTIL FACTOR	ADJ FLOW RATE	PROP OF TURNS LT	RT
EB	T	278	312	1.00	312	0.00	0.00
	TR	277	311	1.00	311	0.00	0.21
WB	LT	500	575	1.00	575	0.27	0.00
	T	600	690	1.00	690	0.00	0.00
NB							
SB	T	273	307	1.00	307	0.00	0.00
	R	213	239	1.00	239	0.00	1.00

S A T U R A T I O N F L O W

APP	MVM	IDEAL SAT FLOW	# OF LANES	ADJUSTMENT FACTORS WIDTH	H.V.	GRADE	PARK	BUS	AREA	RT	LT	ADJ. FLOW
EB	T	1800	1	0.97	0.99	1.00	1.00	1.00	0.90	1.00	1.00	1556
	TR	1800	1	1.00	0.99	1.00	0.85	1.00	0.90	0.97	1.00	1320
WB	LT	1800	1	1.07	0.99	1.00	1.00	1.00	0.90	1.00	0.74	1270
	T	1800	1	1.07	0.99	1.00	0.85	1.00	0.90	1.00	1.00	1459
NB												
SB	T	1800	2	1.02	0.99	1.00	1.00	1.00	0.90	1.00	1.00	3272
	R	1800	1	1.00	0.99	1.00	1.00	1.00	0.90	0.85	1.00	1363

HANCOCK DEVELOPMENT 3AMERB

INTERSECTION :
COLUMBUS AVE. @
CLARENDON ST.
WEEKDAY PM PEAK HOUR 10 MER EXT. CBD ? Y
ACTUATED SIGNAL

C A P A C I T Y A N A L Y S I S

APP	LN GR MVM	ADJ FLOW RATE	PMSV LT FLOW	ADJ SAT FLW RT	FLOW RATIO	CRIT ?	GREEN RATIO	LN GR CAPACITY	V/C RATIO
EB	T	312	0	1556	0.201	N	0.580	902	0.346
	TR	311	0	1320	0.236	N	0.580	766	0.406
WB	LT	575	0	1270	0.453	N	0.580	737	0.780
	T	690	0	1459	0.473	Y	0.580	846	0.816
NB									
SB	T	307	0	3272	0.094	N	0.360	1178	0.261
	R	239	0	1363	0.175	Y	0.360	491	0.487

CYCLE LENGTH : 100.0 SUM OF CRITICAL LANES' FLOW RATIOS : 0.648
LOSS TIME PER CYCLE : 6 INTERSECTION V/C : 0.689

L E V E L O F S E R V I C E

APP	LN GR MVM	V/C RATIO	GREEN RATIO	CYC LEN	1st DELAY	LN GR CAP	2nd DELAY	PF	LN GR DELAY	LN GR LOS	APP DELAY	APP LOS
EB	T	0.346	0.580	100	8.4	902	0.1	0.85	7.2	B		
	TR	0.406	0.580	100	8.8	766	0.2	0.85	7.6	B	7.4	B
WB	LT	0.780	0.580	100	12.2	737	3.7	0.85	13.5	B		
	T	0.816	0.580	100	12.7	846	4.4	0.85	14.5	B	14.0	B
NB												
SB	T	0.261	0.360	100	17.2	1178	0.0	0.85	14.6	B		
	R	0.487	0.360	100	18.9	491	0.6	0.85	16.6	C	15.4	C

INTERSECTION DELAY : 12.6 secs/veh
LEVEL OF SERVICE : B

INTERSECTION :
COLUMBUS ST. @
HERALD ST. EXT.
WEEKDAY PM PEAK HOUR 2010 CBD?Y
ACTUATED SIGNAL

T R A F F I C & R O A D W A Y C O N D I T I O N S

APP	GRADE (%)	HV (%)	ADJ. PKG LN. Y/N	Nm	BUSES (Nb)	PHF	CONF. PEDS (peds/hr)	PED BUTTON Y/N	SEC	ARR TYPE
EB	0	2	N	0	0	0.85	0	N	0.0	3
WB	0	2	N	0	0	0.85	0	N	0.0	3
NB	0	2	N	0	0	0.85	0	N	0.0	3
SB	0	2	N	0	0	0.85	0	N	0.0	3

G E O M E T R I C S / V O L U M E S

APP	VOLUME LT	TH	RT	LANE GROUPS 1 MVM	LNS	WD	2 MVM	LNS	WD	3 MVM	LNS	WD
EB	0	297	200	T	1	12.0	TR	1	12.0			
WB	0	1100	0	T	2	24.0						
NB	0	0	0									
SB	123	100	0	LT	1	12.0						

S I G N A L P H A S I N G

APP	PHASE	1ST MV	2ND MV	3RD MV	PROT	PMSV	G	Y+R
EB	1	T	TR		R		60	40
WB	1	T					60	40
SB	2	LT			L		34	66

HANCOCK DEVELOPMENT 10A

INTERSECTION :
COLUMBUS ST. @
HERALD ST. EXT.
WEEKDAY PM PEAK HOUR 2010 CBD ? Y
ACTUATED SIGNAL

V O L U M E A D J U S T M E N T

APPROACH	LANE GROUP MVM	VOLUME	FLOW RATE IN GROUP	LANE UTIL FACTOR	ADJ FLOW RATE	PROP OF TURNS LT	RT
EB	T	249	293	1.00	293	0.00	0.00
	TR	248	292	1.00	292	0.00	0.87
WB	T	1100	1294	1.00	1294	0.00	0.00
NB							
SB	LT	223	262	1.00	262	0.55	0.00

S A T U R A T I O N F L O W

APP	MVM	IDEAL SAT FLOW	# OF LANES	ADJUSTMENT FACTORS WIDTH	H.V.	GRADE	PARK	BUS	AREA	RT	LT	ADJ. FLOW
EB	T	1800	1	1.00	0.99	1.00	1.00	1.00	0.90	1.00	1.00	1604
	TR	1800	1	1.00	0.99	1.00	1.00	1.00	0.90	0.87	1.00	1395
WB	T	1800	2	1.00	0.99	1.00	1.00	1.00	0.90	1.00	1.00	3208
NB												
SB	LT	1800	1	1.00	0.99	1.00	1.00	1.00	0.90	1.00	0.92	1471

HANCOCK DEVELOPMENT 10A

INTERSECTION :
COLUMBUS ST. @
HERALD ST. EXT.
WEEKDAY PM PEAK HOUR 2010 CBD ? Y
ACTUATED SIGNAL

C A P A C I T Y A N A L Y S I S

APP	LN GR MVM	ADJ FLOW RATE	PMSV LT FLOW	ADJ SAT FLW RT	FLOW RATIO	CRIT ?	GREEN RATIO	LN GR CAPACITY	V/C RATIO
EB	T	293	0	1604	0.183	N	0.600	962	0.305
	TR	292	0	1395	0.209	N	0.600	837	0.349
WB	T	1294	0	3208	0.403	Y	0.600	1925	0.672
NB									
SB	LT	262	0	1471	0.178	Y	0.340	500	0.524

CYCLE LENGTH : 100.0 SUM OF CRITICAL LANES' FLOW RATIOS : 0.581
LOSS TIME PER CYCLE : 6 INTERSECTION V/C : 0.618

L E V E L O F S E R V I C E

APP	LN GR MVM	V/C RATIO	GREEN RATIO	CYC LEN	1st DELAY	LN GR CAP	2nd DELAY	PF	LN GR DELAY	LN GR LOS	APP DELAY	APP LOS
EB	T	0.305	0.600	100	7.4	962	0.1	0.85	6.4	B		
	TR	0.349	0.600	100	7.7	837	0.1	0.85	6.6	B	6.5	B
WB	T	0.672	0.600	100	10.2	1925	0.7	0.85	9.3	B	9.3	B
NB												
SB	LT	0.524	0.340	100	20.1	500	0.8	0.85	17.8	C	17.7	C

INTERSECTION DELAY : 9.6 secs/veh
LEVEL OF SERVICE : B

INTERSECTION :
HERALD ST. EXT. @
BERKELEY ST.
WEEKDAY PM PEAK HOUR 2010 CBD?Y
ACTUATED SIGNAL

TRAFFIC & ROADWAY CONDITIONS

APP	GRADE (%)	HV (%)	ADJ. PKG Y/N	LN. Nm	BUSES (Nb)	PHF	CONF. PEDS (peds/hr)	PED BUTTON Y/N	SEC	ARR TYPE
EB	0	2	N	0	0	0.85	0	N	0.0	3
WB	0	2	N	0	0	0.85	0	N	0.0	3
NB	0	2	N	0	0	0.85	0	N	0.0	3
SB	0	2	N	0	0	0.85	0	N	0.0	3

GEOMETRICS / VOLUMES

APP	VOLUME LT	TH	RT	LANE GROUPS 1 MVM	LNS	WD	2 MVM	LNS	WD	3 MVM	LNS	WD
EB	0	300	0	T	1	12.0						
WB	0	0	0									
NB	0	690	0	T	2	24.0						
SB	0	0	0									

SIGNAL PHASING

APP	PHASE	1ST MV	2ND MV	3RD MV	PROT	PMSV	G	Y+R
EB	1	T					44	56
NB	2	T					50	50

HANCOCK DEVELOPMENT 11

INTERSECTION :
HERALD ST. EXT. @
BERKELEY ST.
WEEKDAY PM PEAK HOUR 2010 CBD ? Y
ACTUATED SIGNAL

V O L U M E A D J U S T M E N T

APPROACH	LANE MVM	GROUP VOLUME	FLOW RATE IN GROUP	LANE UTIL FACTOR	ADJ FLOW RATE	PROP OF TURNS LT	PROP OF TURNS RT
EB	T	300	353	1.00	353	0.00	0.00
WB							
NB	T	690	812	1.00	812	0.00	0.00
SB							

S A T U R A T I O N F L O W

APP	MVM	IDEAL SAT FLOW	# OF LANES	ADJUSTMENT FACTORS WIDTH	H.V.	GRADE	PARK	BUS	AREA	RT	LT	ADJ. FLOW
EB	T	1800	1	1.00	0.99	1.00	1.00	1.00	0.90	1.00	1.00	1604
WB												
NB	T	1800	2	1.00	0.99	1.00	1.00	1.00	0.90	1.00	1.00	3208
SB												

INTERSECTION :
HERALD ST. EXT. @
BERKELEY ST.
WEEKDAY PM PEAK HOUR 2010 CBD ? Y
ACTUATED SIGNAL

C A P A C I T Y A N A L Y S I S

APP	LN GR MVM	ADJ FLOW RATE	PMSV LT FLOW	ADJ SAT FLW RT	FLOW RATIO	CRIT ?	GREEN RATIO	LN GR CAPACITY	V/C RATIO
EB	T	353	0	1604	0.220	Y	0.440	706	0.500
WB									
NB	T	812	0	3208	0.253	Y	0.500	1604	0.506
SB									

CYCLE LENGTH : 100.0 SUM OF CRITICAL LANES' FLOW RATIOS : 0.473
LOSS TIME PER CYCLE : 6 INTERSECTION V/C : 0.503

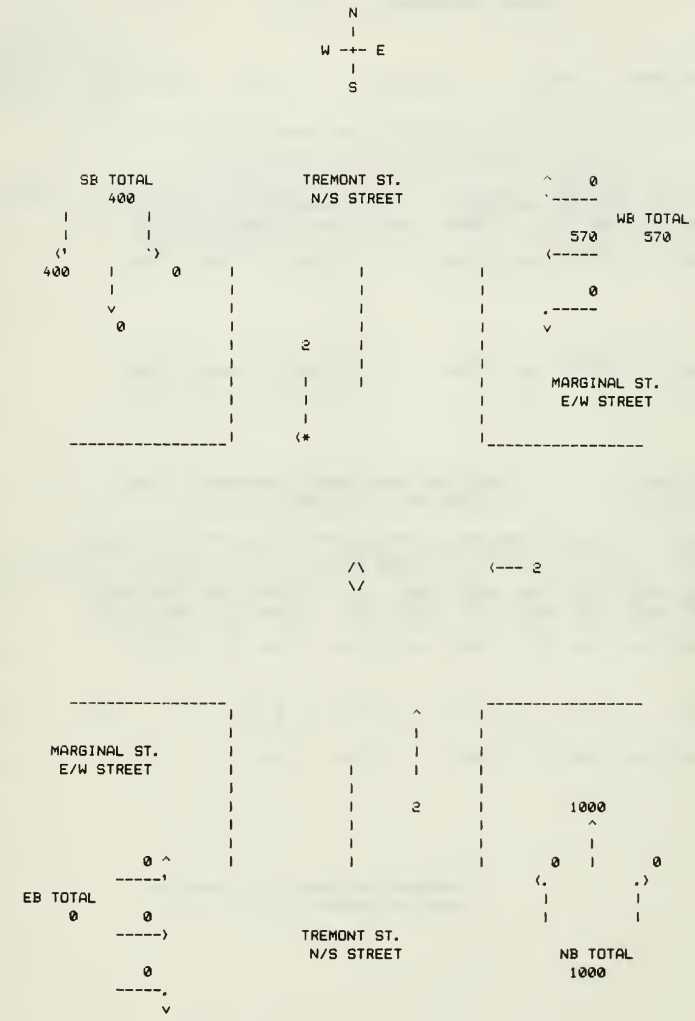
L E V E L O F S E R V I C E

APP	LN GR MVM	V/C RATIO	GREEN RATIO	CYC LEN	1st DELAY	LN GR CAP	2nd DELAY	PF	LN GR DELAY	LN GR LOS	APP DELAY	APP LOS
EB	T	0.500	0.440	100	15.3	706	0.5	0.85	13.4	B	13.3	B
WB												
NB	T	0.506	0.500	100	12.7	1604	0.2	0.85	11.0	B	11.0	B
SB												

INTERSECTION DELAY : 11.6 secs/veh
LEVEL OF SERVICE : B

7/14/1988

HMM ASSOCIATES
INTERSECTION 12



INTERSECTION :
MARGINAL ST. @
TREMONT ST.
WEEKDAY PM PEAK HOUR 2010 CBD?Y
ACTUATED SIGNAL

TRAFFIC & ROADWAY CONDITIONS

APP	GRADE (%)	HV (%)	ADJ. PKG LN. Y/N	BUSES Nm	BUSES (Nb)	PHF	CONF. PEDS (peds/hr)	PED BUTTON Y/N	PED BUTTON SEC	ARR TYPE
EB	0	2	N	0	0	0.85	0	N	0.0	3
WB	0	2	N	0	0	0.85	0	N	0.0	3
NB	0	2	N	0	0	0.85	0	N	0.0	3
SB	0	2	N	0	0	0.85	0	N	0.0	3

GEOMETRICS / VOLUMES

APP	VOLUME LT	VOLUME TH	VOLUME RT	LANE GROUPS 1 MVM	1 LNS	1 WD	2 MVM	2 LNS	2 WD	3 MVM	3 LNS	3 WD
EB	0	0	0									
WB	0	570	0	T	2	24.0						
NB	0	1000	0	T	2	24.0						
SB	0	0	400	R	2	24.0						

SIGNAL PHASING

APP	PHASE	1ST MV	2ND MV	3RD MV	PROT	PMSV	G	Y+R
WB	1	T					50	50
NB	2	T					44	56
SB	2	R			R		44	56

HANCOCK DEVELOPMENT 12

INTERSECTION :
MARGINAL ST. @
TREMONT ST.
WEEKDAY PM PEAK HOUR 2010 CBD ? Y
ACTUATED SIGNAL

V O L U M E A D J U S T M E N T

APPROACH	LANE MVM	GROUP VOLUME	FLOW RATE IN GROUP	LANE UTIL FACTOR	ADJ FLOW RATE	PROP OF TURNS LT	PROP OF TURNS RT
EB							
WB	T	570	671	1.00	671	0.00	0.00
NB	T	1000	1176	1.00	1176	0.00	0.00
SB	R	400	471	1.00	471	0.00	1.00

S A T U R A T I O N F L O W

APP	MVM	IDEAL SAT FLOW	# OF LANES	ADJUSTMENT FACTORS WIDTH	H.V.	GRADE	PARK	BUS	AREA	RT	LT	ADJ. FLOW
EB												
WB	T	1800	2	1.00	0.99	1.00	1.00	1.00	0.90	1.00	1.00	3208
NB	T	1800	2	1.00	0.99	1.00	1.00	1.00	0.90	1.00	1.00	3208
SB	R	1800	2	1.00	0.99	1.00	1.00	1.00	0.90	0.85	1.00	2726

HANCOCK DEVELOPMENT 12

INTERSECTION :
MARGINAL ST. @
TREMONT ST.
WEEKDAY PM PEAK HOUR 2010 CBD ? Y
ACTUATED SIGNAL

C A P A C I T Y A N A L Y S I S

APP	LN GR MVM	ADJ FLOW RATE	PMSV LT FLOW	ADJ SAT FLW RT	FLOW RATIO	CRIT ?	GREEN RATIO	LN GR CAPACITY	V/C RATIO
EB									
WB	T	671	0	3208	0.209	Y	0.500	1604	0.418
NB	T	1176	0	3208	0.367	Y	0.440	1412	0.833
SB	R	471	0	2726	0.173	N	0.440	1199	0.393

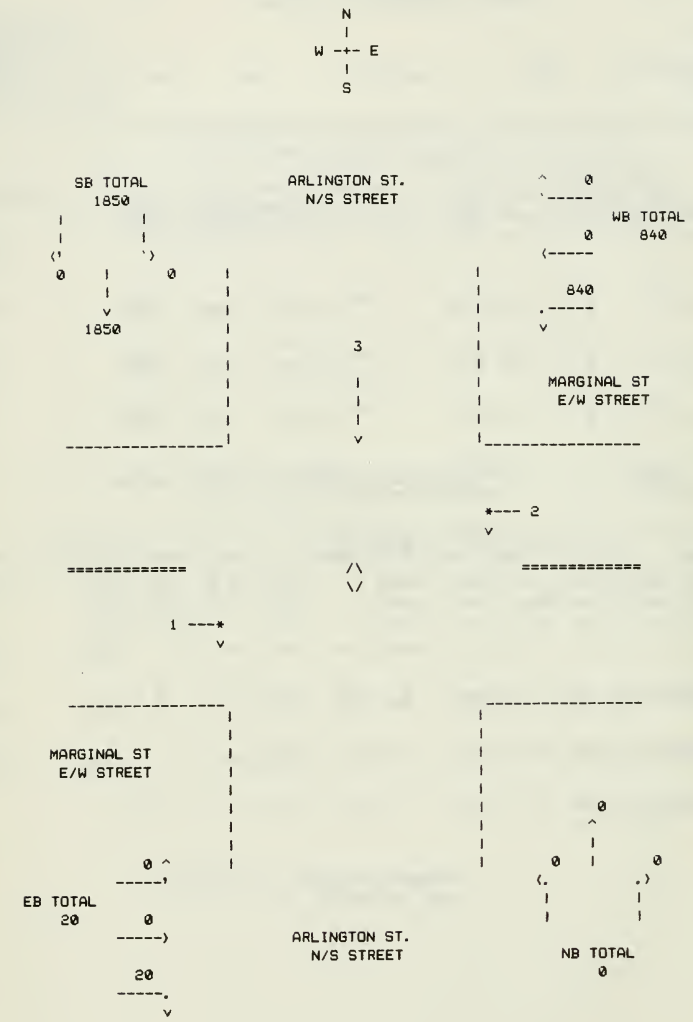
CYCLE LENGTH : 100.0 SUM OF CRITICAL LANES' FLOW RATIOS : 0.576
LOSS TIME PER CYCLE : 6 INTERSECTION V/C : 0.613

L E V E L O F S E R V I C E

APP	LN GR MVM	V/C RATIO	GREEN RATIO	CYC LEN	1st DELAY	LN GR CAP	2nd DELAY	PF	LN GR DELAY	LN GR LOS	APP DELAY	APP LOS
EB												
WB	T	0.418	0.500	100	12.0	1604	0.1	0.85	10.3	B	10.3	B
NB	T	0.833	0.440	100	18.8	1412	3.1	0.85	18.6	C	18.6	C
SB	R	0.393	0.440	100	14.4	1199	0.1	0.85	12.3	B	12.2	B

INTERSECTION DELAY : 14.9 secs/veh
LEVEL OF SERVICE : B

HMM ASSOCIATES
INTERSECTION 13



NTERSECTION :
MARGINAL ST @
RLINGTON ST.
EEKDAY PM PEAK HOUR 2010 CBD?Y
CTUATED SIGNAL

TRAFFIC & ROADWAY CONDITIONS

APP	GRADE (%)	HV (%)	ADJ. PKG Y/N	LN. Nm	BUSES (Nb)	PHF	CONF. PEDS (peds/hr)	PED Y/N	BUTTON SEC	ARR TYPE
EB	0	2	N	0	0	0.85	0	N	0.0	3
WB	0	2	N	0	0	0.85	0	N	0.0	3
NB	0	2	N	0	0	0.85	0	N	0.0	3
SB	0	2	N	0	0	0.85	0	N	0.0	3

GEOMETRICS / VOLUMES

APP	VOLUME LT	TH	RT	LANE GROUPS 1 MVM	LNS	WD	2 MVM	LNS	WD	3 MVM	LNS	WD
EB	0	0	20	R	1	12.0						
WB	840	0	0	L	2	24.0						
NB	0	0	0									
SB	0	1850	0	T	3	36.0						

SIGNAL PHASING

APP	PHASE	1ST MV	2ND MV	3RD MV	PROT	PMSV	G	Y+R
EB	2	R			R		7	93
WB	3	L			L		37	63
SB	1	T					47	53

HANCOCK DEVELOPMENT 13

INTERSECTION :
MARGINAL ST @
ARLINGTON ST.
WEEKDAY PM PEAK HOUR 2010 CBD ? Y
ACTUATED SIGNAL

V O L U M E A D J U S T M E N T

APPROACH	LANE MVM	GROUP VOLUME	FLOW RATE IN GROUP	LANE UTIL FACTOR	ADJ FLOW RATE	PROP OF TURNS LT	PROP OF TURNS RT
EB	R	20	24	1.00	24	0.00	1.00
WB	L	840	988	1.00	988	1.00	0.00
NB							
SB	T	1850	2176	1.00	2176	0.00	0.00

S A T U R A T I O N F L O W

APP	MVM	IDEAL SAT FLOW	# OF LANES	ADJUSTMENT FACTORS WIDTH	H.V.	GRADE	PARK	BUS	AREA	RT	LT	ADJ. FLOW
EB	R	1800	1	1.00	0.99	1.00	1.00	1.00	0.90	0.90	1.00	1443
WB	L	1800	2	1.00	0.99	1.00	1.00	1.00	0.90	1.00	0.95	3047
NB												
SB	T	1800	3	1.00	0.99	1.00	1.00	1.00	0.90	1.00	1.00	4811

INTERSECTION :
MARGINAL ST @
ARLINGTON ST.
WEEKDAY PM PEAK HOUR 2010 CBD ? Y
ACTUATED SIGNAL

CAPACITY ANALYSIS

APP	LN GR MVM	ADJ FLOW RATE	PMSV LT FLOW	ADJ SAT FLW RT	FLOW RATIO	CRIT ?	GREEN RATIO	LN GR CAPACITY	V/C RATIO
EB	R	24	0	1443	0.017	Y	0.070	101	0.238
WB	L	988	0	3047	0.324	Y	0.370	1127	0.877
NB									
SB	T	2176	0	4811	0.452	Y	0.470	2261	0.962

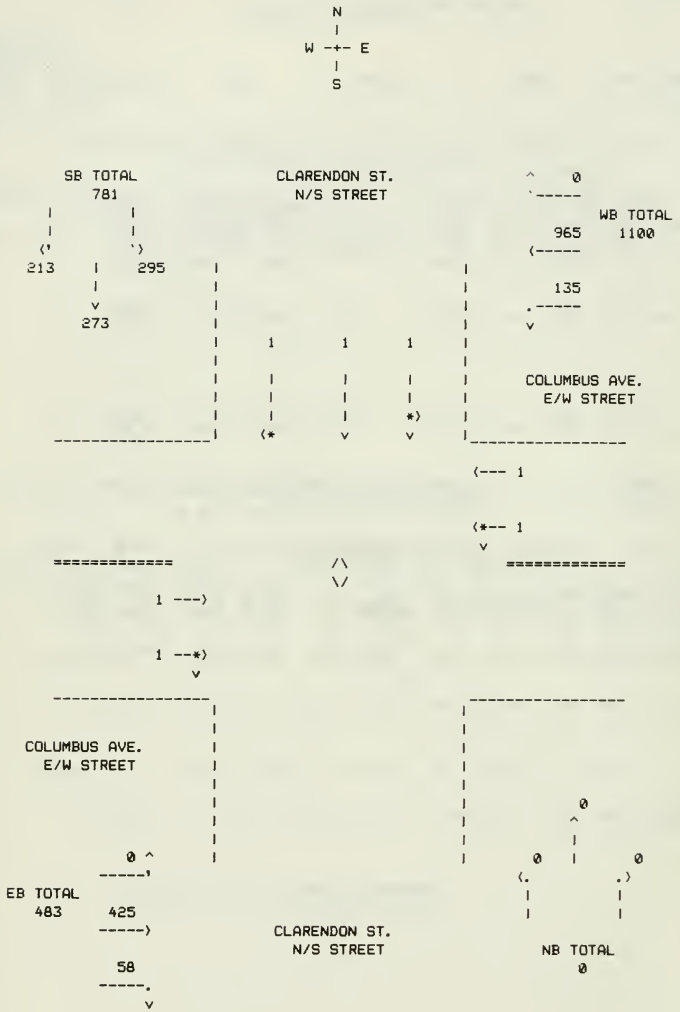
CYCLE LENGTH : 100.0 SUM OF CRITICAL LANES' FLOW RATIOS : 0.793
LOSS TIME PER CYCLE : 9 INTERSECTION V/C : 0.871

LEVEL OF SERVICE

APP	LN GR MVM	V/C RATIO	GREEN RATIO	CYC LEN	1st DELAY	LN GR CAP	2nd DELAY	PF	LN GR DELAY	LN GR LOS	APP DELAY	APP LOS
EB	R	0.238	0.070	100	33.4	101	0.2	0.85	28.6	D	26.4	D
WB	L	0.877	0.370	100	22.3	1127	5.7	1.00	28.0	D	27.9	D
NB												
SB	T	0.962	0.470	100	19.5	2261	8.5	0.85	23.8	C	23.8	C

INTERSECTION DELAY : 25.1 secs/veh
LEVEL OF SERVICE : D

HMM ASSOCIATES
INTERSECTION 3AHERB



INTERSECTION :
COLUMBUS AVE. @
CLARENDON ST.
WEEKDAY PM PEAK HOUR 10 HER EXT. CBD?Y
ACTUATED SIGNAL

T R A F F I C & R O A D W A Y C O N D I T I O N S

APP	GRADE (%)	HV (%)	ADJ. PKG LN. Y/N	Nm	BUSES (Nb)	PHF	CONF. PEDS (peds/hr)	PED BUTTON Y/N	SEC	ARR TYPE
EB	0	2	Y	10	0	0.89	0	Y	12.5	3
WB	0	2	Y	10	0	0.87	0	Y	9.2	3
NB	0	0	N	0	0	0.90	0	N	0.0	3
SB	0	2	N	0	0	0.89	0	Y	17.0	3

G E O M E T R I C S / V O L U M E S

APP	VOLUME LT	TH	RT	LANE GROUPS 1 MVM	LNS	WD	2 MVM	LNS	WD	3 MVM	LNS	WD
EB	0	425	58	T	1	11.0	TR	1	12.0			
WB	135	965	0	LT	1	14.0	T	1	14.0			
NB	0	0	0									
SB	295	273	213	LT	1	13.0	T	1	12.0	R	1	12.0

S I G N A L P H A S I N G

APP	PHASE	1ST MV	2ND MV	3RD MV	PROT	PMSV	G	Y+R
EB	1	T	TR		R		58	42
WB	1	LT	T			L	58	42
SB	2	LT	T	R	R	L	34	66

HANCOCK DEVELOPMENT 3AHERB

INTERSECTION :
COLUMBUS AVE. @
CLARENDON ST.
WEEKDAY PM PEAK HOUR 10 HER EXT. CBD ? Y
ACTUATED SIGNAL

V O L U M E A D J U S T M E N T

APPROACH	LANE GROUP MVM	VOLUME	FLOW RATE IN GROUP	LANE UTIL FACTOR	ADJ FLOW RATE	PROP OF TURNS LT	RT
EB	T	242	272	1.00	272	0.00	0.00
	TR	241	271	1.00	271	0.00	0.24
WB	LT	500	575	1.00	575	0.27	0.00
	T	600	690	1.00	690	0.00	0.00
NB							
SB	LT	295	331	1.00	331	1.00	0.00
	T	273	307	1.00	307	0.00	0.00
	R	213	239	1.00	239	0.00	1.00

S A T U R A T I O N F L O W

APP	MVM	IDEAL SAT FLOW	# OF LANES	ADJUSTMENT FACTORS WIDTH	H.V.	GRADE	PARK	BUS	AREA	RT	LT	ADJ. FLOW
EB	T	1800	1	0.97	0.99	1.00	1.00	1.00	0.90	1.00	1.00	1556
	TR	1800	1	1.00	0.99	1.00	0.85	1.00	0.90	0.96	1.00	1314
WB	LT	1800	1	1.07	0.99	1.00	1.00	1.00	0.90	1.00	0.78	1339
	T	1800	1	1.07	0.99	1.00	0.85	1.00	0.90	1.00	1.00	1459
NB												
SB	LT	1800	1	1.03	0.99	1.00	1.00	1.00	0.90	1.00	0.95	1569
	T	1800	1	1.00	0.99	1.00	1.00	1.00	0.90	1.00	1.00	1604
	R	1800	1	1.00	0.99	1.00	1.00	1.00	0.90	0.85	1.00	1363

HANCOCK DEVELOPMENT 3AHERB

INTERSECTION :
COLUMBUS AVE. @
CLARENDON ST.
WEEKDAY PM PEAK HOUR 10 HER EXT. CBD ? Y
ACTUATED SIGNAL

C A P A C I T Y A N A L Y S I S

APP	LN GR MVM	ADJ FLOW RATE	PMSV LT FLOW	ADJ SAT FLW RT	FLOW RATIO	CRIT ?	GREEN RATIO	LN GR CAPACITY	V/C RATIO
EB	T	272	0	1556	0.175	N	0.580	902	0.302
	TR	271	0	1314	0.206	N	0.580	762	0.356
WB	LT	575	0	1339	0.429	N	0.580	777	0.740
	T	690	0	1459	0.473	Y	0.580	846	0.816
NB									
SB	LT	331	0	1569	0.211	Y	0.340	533	0.621
	T	307	0	1604	0.191	N	0.340	545	0.563
	R	239	0	1363	0.175	N	0.340	463	0.516

CYCLE LENGTH : 100.0 SUM OF CRITICAL LANES' FLOW RATIOS : 0.684
LOSS TIME PER CYCLE : 6 INTERSECTION V/C : 0.728

L E V E L O F S E R V I C E

APP	LN GR MVM	V/C RATIO	GREEN RATIO	CYC LEN	1st DELAY	LN GR CAP	2nd DELAY	PF	LN GR DELAY	LN GR LOS	APP DELAY	APP LOS
EB	T	0.302	0.580	100	8.1	902	0.1	0.85	7.0	B		
	TR	0.356	0.580	100	8.4	762	0.1	0.85	7.2	B	7.1	B
WB	LT	0.740	0.580	100	11.7	777	2.6	0.85	12.2	B		
	T	0.816	0.580	100	12.7	846	4.4	0.85	14.5	B	13.4	B
NB												
SB	LT	0.621	0.340	100	21.0	533	1.6	0.85	19.2	C		
	T	0.563	0.340	100	20.5	545	1.0	0.85	18.3	C		
	R	0.516	0.340	100	20.1	463	0.8	0.85	17.8	C	18.5	C

INTERSECTION DELAY : 13.8 secs/veh
LEVEL OF SERVICE : B

INTERSECTION :
HERALD ST. EXT. @
BERKELEY ST.
WEEKDAY PM PEAK HOUR 2010 CBD?Y
ACTUATED SIGNAL

T R A F F I C & R O A D W A Y C O N D I T I O N S

APP	GRADE (%)	HV (%)	ADJ. PKG LN. Y/N	Nm	BUSES (Nb)	PHF	CONF. PEDS (peds/hr)	PED BUTTON Y/N	SEC	ARR TYPE
EB	0	2	N	0	0	0.85	0	N	0.0	3
WB	0	2	N	0	0	0.85	0	N	0.0	3
NB	0	2	N	0	0	0.85	0	N	0.0	3
SB	0	2	N	0	0	0.85	0	N	0.0	3

G E O M E T R I C S / V O L U M E S

APP	VOLUME LT	TH	RT	LANE GROUPS 1 MVM	LNS	WD	2 MVM	LNS	WD	3 MVM	LNS	WD
EB	0	300	0	T	1	12.0						
WB	0	0	0									
NB	0	690	0	T	2	24.0						
SB	0	0	0									

S I G N A L P H A S I N G

APP	PHASE	1ST MV	2ND MV	3RD MV	PROT	PMSV	G	Y+R
EB	1	T					44	56
NB	2	T					50	50

HANCOCK DEVELOPMENT 11

INTERSECTION :
HERALD ST. EXT. @
BERKELEY ST.
WEEKDAY PM PEAK HOUR 2010 CBD ? Y
ACTUATED SIGNAL

V O L U M E A D J U S T M E N T

APPROACH	LANE MVM	GROUP VOLUME	FLOW RATE IN GROUP	LANE UTIL FACTOR	ADJ FLOW RATE	PROP OF TURNS LT	RT
EB	T	300	353	1.00	353	0.00	0.00
WB							
NB	T	690	812	1.00	812	0.00	0.00
SB							

S A T U R A T I O N F L O W

APP	MVM	IDEAL SAT FLOW	# OF LANES	ADJUSTMENT FACTORS WIDTH	H.V.	GRADE	PARK	BUS	AREA	RT	LT	ADJ. FLOW
EB	T	1800	1	1.00	0.99	1.00	1.00	1.00	0.90	1.00	1.00	1604
WB												
NB	T	1800	2	1.00	0.99	1.00	1.00	1.00	0.90	1.00	1.00	3208
SB												

HANCOCK DEVELOPMENT 11

INTERSECTION :
HERALD ST. EXT. @
BERKELEY ST.
WEEKDAY PM PEAK HOUR 2010 CBD ? Y
ACTUATED SIGNAL

C A P A C I T Y A N A L Y S I S

APP	LN GR MVM	ADJ FLOW RATE	PMSV LT FLOW	ADJ SAT FLW RT	FLOW RATIO	CRIT ?	GREEN RATIO	LN GR CAPACITY	V/C RATIO
EB	T	353	0	1604	0.220	Y	0.440	706	0.500
WB									
NB	T	812	0	3208	0.253	Y	0.500	1604	0.506
SB									

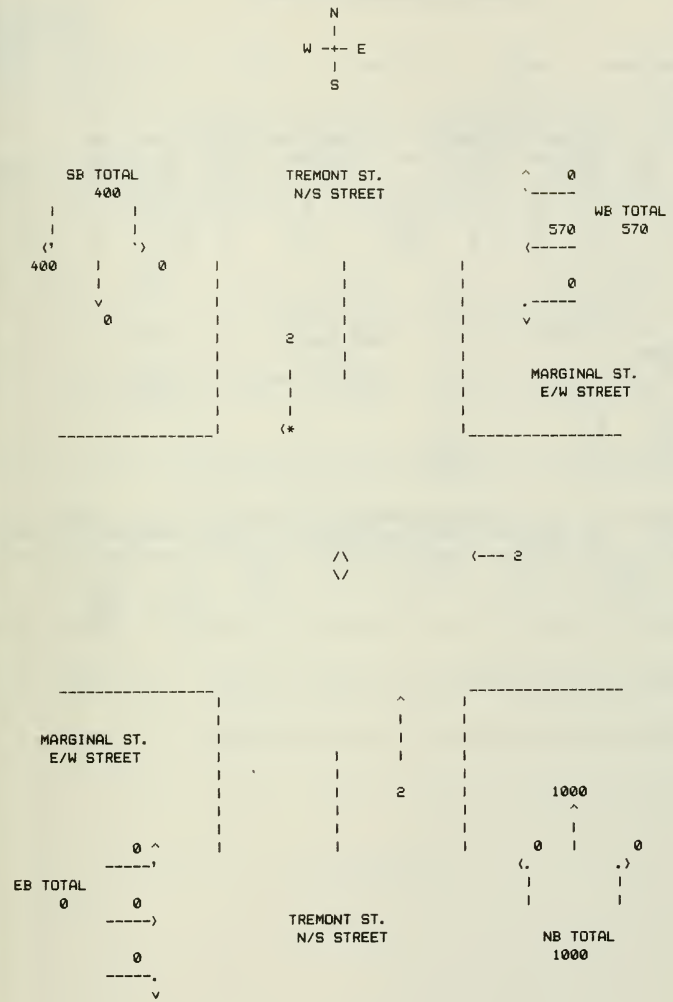
CYCLE LENGTH : 100.0 SUM OF CRITICAL LANES' FLOW RATIOS : 0.473
LOSS TIME PER CYCLE : 6 INTERSECTION V/C : 0.503

L E V E L O F S E R V I C E

APP	LN GR MVM	V/C RATIO	GREEN RATIO	CYC LEN	1st DELAY	LN GR CAP	2nd DELAY	PF	LN GR DELAY	LN GR LOS	APP DELAY	APP LOS
EB	T	0.500	0.440	100	15.3	706	0.5	0.85	13.4	B	13.3	B
WB												
NB	T	0.506	0.500	100	12.7	1604	0.2	0.85	11.0	B	11.0	B
SB												

INTERSECTION DELAY : 11.6 secs/veh
LEVEL OF SERVICE : B

HMM ASSOCIATES
INTERSECTION 12



INTERSECTION :
MARGINAL ST. @
TREMONT ST.
WEEKDAY PM PEAK HOUR 2010 CBD?Y
ACTUATED SIGNAL

T R A F F I C & R O A D W A Y C O N D I T I O N S

APP	GRADE (%)	HV (%)	ADJ. PKG Y/N	LN. Nm	BUSES (Nb)	PHF	CONF. PEDS (peds/hr)	PED BUTTON Y/N	SEC	ARR TYPE
EB	0	2	N	0	0	0.85	0	N	0.0	3
WB	0	2	N	0	0	0.85	0	N	0.0	3
NB	0	2	N	0	0	0.85	0	N	0.0	3
SB	0	2	N	0	0	0.85	0	N	0.0	3

G E O M E T R I C S / V O L U M E S

APP	VOLUME LT	TH	RT	LANE GROUPS 1 MVM	LNS	WD	2 MVM	LNS	WD	3 MVM	LNS	WD
EB	0	0	0									
WB	0	570	0	T	2	24.0						
NB	0	1000	0	T	2	24.0						
SB	0	0	400	R	2	24.0						

S I G N A L P H A S I N G

APP	PHASE	1ST MV	2ND MV	3RD MV	PROT	PMSV	G	Y+R
WB	1	T					50	50
NB	2	T					44	56
SB	2	R			R		44	56

HANCOCK DEVELOPMENT 12

INTERSECTION :
MARGINAL ST. @
TREMONT ST.
WEEKDAY PM PEAK HOUR 2010 CBD ? Y
ACTUATED SIGNAL

V O L U M E A D J U S T M E N T

APPROACH	LANE MVM	GROUP VOLUME	FLOW RATE IN GROUP	LANE UTIL FACTOR	ADJ FLOW RATE	PROP OF TURNS LT	RT
EB							
WB	T	570	671	1.00	671	0.00	0.00
NB	T	1000	1176	1.00	1176	0.00	0.00
SB	R	400	471	1.00	471	0.00	1.00

S A T U R A T I O N F L O W

APP	MVM	IDEAL SAT FLOW	# OF LANES	ADJUSTMENT FACTORS WIDTH	H.V.	GRADE	PARK	BUS	AREA	RT	LT	ADJ. FLOW
EB												
WB	T	1800	2	1.00	0.99	1.00	1.00	1.00	0.90	1.00	1.00	3208
NB	T	1800	2	1.00	0.99	1.00	1.00	1.00	0.90	1.00	1.00	3208
SB	R	1800	2	1.00	0.99	1.00	1.00	1.00	0.90	0.85	1.00	2726

HANCOCK DEVELOPMENT 12

INTERSECTION :
MARGINAL ST. @
TREMONT ST.
WEEKDAY PM PEAK HOUR 2010 CBD ? Y
ACTUATED SIGNAL

C A P A C I T Y A N A L Y S I S

APP	LN GR MVM	ADJ FLOW RATE	PMSV LT FLOW	ADJ SAT FLW RT	FLOW RATIO	CRIT ?	GREEN RATIO	LN GR CAPACITY	V/C RATIO
EB									
WB	T	671	0	3208	0.209	Y	0.500	1604	0.418
NB	T	1176	0	3208	0.367	Y	0.440	1412	0.833
SB	R	471	0	2726	0.173	N	0.440	1199	0.393

CYCLE LENGTH : 100.0 SUM OF CRITICAL LANES' FLOW RATIOS : 0.576
LOSS TIME PER CYCLE : 6 INTERSECTION V/C : 0.613

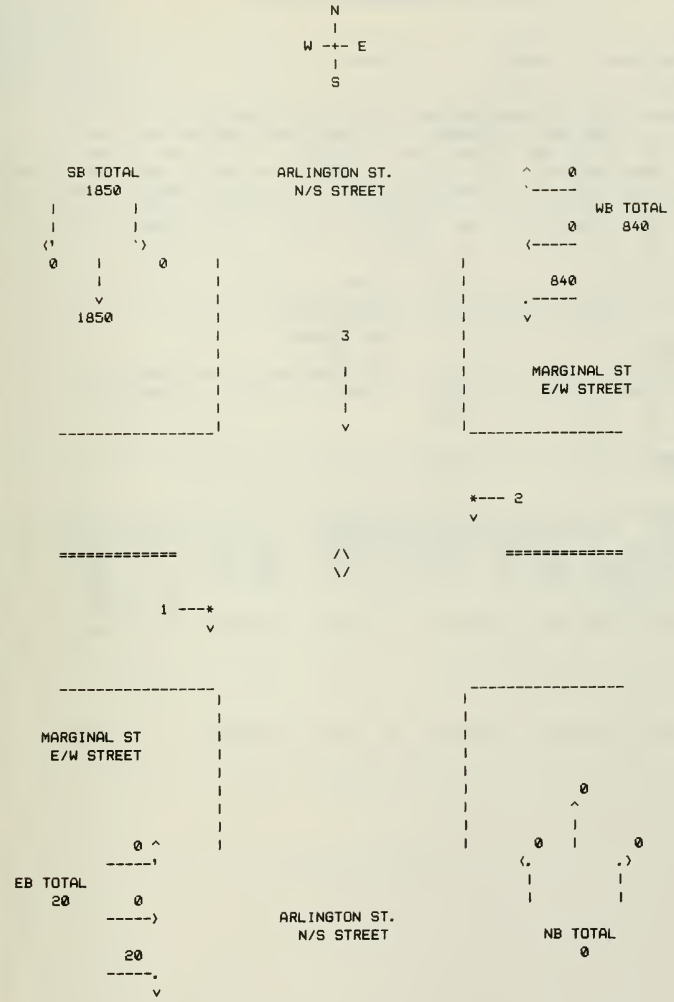
L E V E L O F S E R V I C E

APP	LN GR MVM	V/C RATIO	GREEN RATIO	CYC LEN	1st DELAY	LN GR CAP	2nd DELAY	PF	LN GR DELAY	LN GR LOS	APP DELAY	APP LOS
EB												
WB	T	0.418	0.500	100	12.0	1604	0.1	0.85	10.3	B	10.3	B
NB	T	0.833	0.440	100	18.8	1412	3.1	0.85	18.6	C	18.6	C
SB	R	0.393	0.440	100	14.4	1199	0.1	0.85	12.3	B	12.2	B

INTERSECTION DELAY : 14.9 secs/veh
LEVEL OF SERVICE : B

7/14/1988

HMM ASSOCIATES
INTERSECTION 13



INTERSECTION :
MARGINAL ST @
ARLINGTON ST.
WEEKDAY PM PEAK HOUR 2010 CBD?Y
ACTUATED SIGNAL

T R A F F I C & R O A D W A Y C O N D I T I O N S

APP	GRADE (%)	HV (%)	ADJ. PKG Y/N	LN. Nm	BUSES (Nb)	PHF	CONF. PEDS (peds/hr)	PED BUTTON Y/N	SEC	ARR TYPE
EB	0	2	N	0	0	0.85	0	N	0.0	3
WB	0	2	N	0	0	0.85	0	N	0.0	3
NB	0	2	N	0	0	0.85	0	N	0.0	3
SB	0	2	N	0	0	0.85	0	N	0.0	3

G E O M E T R I C S / V O L U M E S

APP	VOLUME LT	TH	RT	LANE GROUPS 1 MVM	LNS	WD	2 MVM	LNS	WD	3 MVM	LNS	WD
EB	0	0	20	R	1	12.0						
WB	840	0	0	L	2	24.0						
NB	0	0	0									
SB	0	1850	0	T	3	36.0						

S I G N A L P H A S I N G

APP	PHASE	1ST MV	2ND MV	3RD MV	PROT	PMSV	G	Y+R
EB	2	R			R		7	93
WB	3	L			L		37	63
SB	1	T					47	53

HANCOCK DEVELOPMENT 13

INTERSECTION :
MARGINAL ST @
ARLINGTON ST.
WEEKDAY PM PEAK HOUR 2010 CBD ? Y
ACTUATED SIGNAL

V O L U M E A D J U S T M E N T

APPROACH	LANE MVM	GROUP VOLUME	FLOW RATE IN GROUP	LANE UTIL FACTOR	ADJ FLOW RATE	PROP OF TURNS LT	RT
EB	R	20	24	1.00	24	0.00	1.00
WB	L	840	988	1.00	988	1.00	0.00
NB							
SB	T	1850	2176	1.00	2176	0.00	0.00

S A T U R A T I O N F L O W

APP	MVM	IDEAL SAT FLOW	# OF LANES	ADJUSTMENT FACTORS WIDTH	H.V.	GRADE	PARK	BUS	AREA	RT	LT	ADJ. FLOW
EB	R	1800	1	1.00	0.99	1.00	1.00	1.00	0.90	0.90	1.00	1443
WB	L	1800	2	1.00	0.99	1.00	1.00	1.00	0.90	1.00	0.95	3047
NB												
SB	T	1800	3	1.00	0.99	1.00	1.00	1.00	0.90	1.00	1.00	4811

HANCOCK DEVELOPMENT 13

INTERSECTION :
MARGINAL ST @
ARLINGTON ST.
WEEKDAY PM PEAK HOUR 2010 CBD ? Y
ACTUATED SIGNAL

C A P A C I T Y A N A L Y S I S

APP	LN GR MVM	ADJ FLOW RATE	PMSV LT FLOW	ADJ SAT FLW RT	FLOW RATIO	CRIT ?	GREEN RATIO	LN GR CAPACITY	V/C RATIO
EB	R	24	0	1443	0.017	Y	0.070	101	0.238
WB	L	988	0	3047	0.324	Y	0.370	1127	0.877
NB									
SB	T	2176	0	4811	0.452	Y	0.470	2261	0.962

CYCLE LENGTH : 100.0 SUM OF CRITICAL LANES' FLOW RATIOS : 0.793
LOSS TIME PER CYCLE : 9 INTERSECTION V/C : 0.871

L E V E L O F S E R V I C E

APP	LN GR MVM	V/C RATIO	GREEN RATIO	CYC LEN	1st DELAY	LN GR CAP	2nd DELAY	PF	LN GR DELAY	LN GR LOS	APP DELAY	APP LOS
EB	R	0.238	0.070	100	33.4	101	0.2	0.85	28.6	D	26.4	D
WB	L	0.877	0.370	100	22.3	1127	5.7	1.00	28.0	D	27.9	D
NB												
SB	T	0.962	0.470	100	19.5	2261	8.5	0.85	23.8	C	23.8	C

INTERSECTION DELAY : 25.1 secs/veh
LEVEL OF SERVICE : D

APPENDIX F

2010 BUILD CONDITION ALTERNATES P-3A AND P-3B
CAPACITY ANALYSIS

INTERSECTION :
COLUMBUS AVE. @
CLARENDON ST.
WEEKDAY PM PEAK HOUR 10 B LONG CBD?Y
ACTUATED SIGNAL

T R A F F I C & R O A D W A Y C O N D I T I O N S

APP	GRADE (%)	HV (%)	ADJ. Y/N	PKG LN. Nm	BUSES (Nb)	PHF	CONF. PEDS (peds/hr)	PED Y/N	BUTTON SEC	ARR TYPE
EB	0	2	Y	10	0	0.89	0	Y	12.5	3
WB	0	2	Y	10	0	0.87	0	Y	9.2	3
NB	0	0	N	0	0	0.90	0	N	0.0	3
SB	0	2	N	0	0	0.89	0	Y	17.0	3

G E O M E T R I C S / V O L U M E S

APP	VOLUME LT	TH	RT	LANE GROUPS 1 MVM	LNS	WD	2 MVM	LNS	WD	3 MVM	LNS	WD
EB	0	528	58	T	1	11.0	TR	1	12.0			
WB	146	1058	0	LT	1	14.0	T	1	14.0			
NB	0	0	0									
SB	0	273	213	T	2	25.0	R	1	12.0			

S I G N A L P H A S I N G

APP	PHASE	1ST MV	2ND MV	3RD MV	PROT	PMSV	G	Y+R
EB	1	T	TR		R		58	42
WB	1	LT	T			L	58	42
SB	2	T	R		R		34	66

HANCOCK DEVELOPMENT 3AHERAB

INTERSECTION :
COLUMBUS AVE. @
CLARENDON ST.
WEEKDAY PM PEAK HOUR 10 B LONG CBD ? Y
ACTUATED SIGNAL

V O L U M E A D J U S T M E N T

APPROACH	LANE GROUP MVM	VOLUME	FLOW RATE IN GROUP	LANE UTIL FACTOR	ADJ FLOW RATE	PROP OF TURNS LT	RT
EB	T	293	329	1.00	329	0.00	0.00
	TR	293	329	1.00	329	0.00	0.20
WB	LT	560	644	1.00	644	0.26	0.00
	T	644	740	1.00	740	0.00	0.00
NB							
SB	T	273	307	1.00	307	0.00	0.00
	R	213	239	1.00	239	0.00	1.00

S A T U R A T I O N F L O W

APP	MVM	IDEAL SAT FLOW	# OF LANES	ADJUSTMENT FACTORS WIDTH	H.V.	GRADE	PARK	BUS	AREA	RT	LT	ADJ. FLOW
EB	T	1800	1	0.97	0.99	1.00	1.00	1.00	0.90	1.00	1.00	1556
	TR	1800	1	1.00	0.99	1.00	0.85	1.00	0.90	0.97	1.00	1322
WB	LT	1800	1	1.07	0.99	1.00	1.00	1.00	0.90	1.00	0.73	1253
	T	1800	1	1.07	0.99	1.00	0.85	1.00	0.90	1.00	1.00	1459
NB												
SB	T	1800	2	1.02	0.99	1.00	1.00	1.00	0.90	1.00	1.00	3272
	R	1800	1	1.00	0.99	1.00	1.00	1.00	0.90	0.85	1.00	1363

HANCOCK DEVELOPMENT 3AHERAB

INTERSECTION :
COLUMBUS AVE. @
CLARENDON ST.
WEEKDAY PM PEAK HOUR 10 B LONG CBD ? Y
ACTUATED SIGNAL

C A P A C I T Y A N A L Y S I S

APP	LN GR MVM	ADJ FLOW RATE	PMSV LT FLOW	ADJ SAT FLW RT	FLOW RATIO	CRIT ?	GREEN RATIO	LN GR CAPACITY	V/C RATIO
EB	T	329	0	1556	0.211	N	0.580	902	0.365
	TR	329	0	1322	0.249	N	0.580	767	0.429
WB	LT	644	0	1253	0.514	Y	0.580	727	0.886
	T	740	0	1459	0.507	N	0.580	846	0.875
NB									
SB	T	307	0	3272	0.094	N	0.340	1112	0.276
	R	239	0	1363	0.175	Y	0.340	463	0.516

CYCLE LENGTH : 100.0 SUM OF CRITICAL LANES' FLOW RATIOS : 0.689
LOSS TIME PER CYCLE : 6 INTERSECTION V/C : 0.733

L E V E L O F S E R V I C E

APP	LN GR MVM	V/C RATIO	GREEN RATIO	CYC LEN	1st DELAY	LN GR CAP	2nd DELAY	PF	LN GR DELAY	LN GR LOS	APP DELAY	APP LOS
EB	T	0.365	0.580	100	8.5	902	0.1	0.85	7.3	B		
	TR	0.429	0.580	100	8.9	767	0.2	0.85	7.7	B	7.5	B
WB	LT	0.886	0.580	100	13.8	727	9.0	0.85	19.4	C		
	T	0.875	0.580	100	13.6	846	7.2	0.85	17.7	C	18.5	C
NB												
SB	T	0.276	0.340	100	18.3	1112	0.0	0.85	15.6	C		
	R	0.516	0.340	100	20.1	463	0.8	0.85	17.8	C	16.5	C

INTERSECTION DELAY : 15.3 secs/veh
LEVEL OF SERVICE : C

HANCOCK DEVELOPMENT 10AB

INTERSECTION :
COLUMBUS ST. @
HERALD ST. EXT.
WEEKDAY PM PEAK HOUR 10 B LONG CBD?Y
ACTUATED SIGNAL

T R A F F I C & R O A D W A Y C O N D I T I O N S

APP	GRADE (%)	HV (%)	ADJ. PKG Y/N	LN. Nm	BUSES (Nb)	PHF	CONF. PEDS (peds/hr)	PED BUTTON Y/N	SEC	ARR TYPE
EB	0	2	N	0	0	0.85	0	N	0.0	3
WB	0	2	N	0	0	0.85	0	N	0.0	3
NB	0	2	N	0	0	0.85	0	N	0.0	3
SB	0	2	N	0	0	0.85	0	N	0.0	3

G E O M E T R I C S / V O L U M E S

APP	VOLUME LT	TH	RT	LANE GROUPS 1 MVM	LNS	WD	2 MVM	LNS	WD	3 MVM	LNS	WD
EB	0	328	200	T	1	12.0	TR	1	12.0			
WB	0	1204	0	T	2	24.0						
NB	0	0	0									
SB	123	153	0	LT	1	12.0						

S I G N A L P H A S I N G

APP	PHASE	1ST MV	2ND MV	3RD MV	PROT	PMSV	G	Y+R
EB	1	T	TR		R		60	40
WB	1	T					60	40
SB	2	LT			L		34	66

HMM ASSOCIATES 7/21/1988

HANCOCK DEVELOPMENT 10AB

INTERSECTION :
COLUMBUS ST. @
HERALD ST. EXT.
WEEKDAY PM PEAK HOUR 10 B LONG CBD ? Y
ACTUATED SIGNAL

V O L U M E A D J U S T M E N T

APPROACH	LANE MVM	GROUP VOLUME	FLOW RATE IN GROUP	LANE UTIL FACTOR	ADJ FLOW RATE	PROP OF TURNS LT	RT
EB	T	264	311	1.00	311	0.00	0.00
	TR	264	311	1.00	311	0.00	0.76
WB	T	1204	1416	1.00	1416	0.00	0.00
NB							
SB	LT	276	325	1.00	325	0.44	0.00

S A T U R A T I O N F L O W

APP	MVM	IDEAL SAT FLOW	# OF LANES	ADJUSTMENT FACTORS WIDTH	H.V.	GRADE	PARK	BUS	AREA	RT	LT	ADJ. FLOW
EB	T	1800	1	1.00	0.99	1.00	1.00	1.00	0.90	1.00	1.00	1604
	TR	1800	1	1.00	0.99	1.00	1.00	1.00	0.90	0.89	1.00	1421
WB	T	1800	2	1.00	0.99	1.00	1.00	1.00	0.90	1.00	1.00	3208
NB												
SB	LT	1800	1	1.00	0.99	1.00	1.00	1.00	0.90	1.00	0.93	1498

HANCOCK DEVELOPMENT 10AB

INTERSECTION :
COLUMBUS ST. @
HERALD ST. EXT.
WEEKDAY PM PEAK HOUR 10 B LONG CBD ? Y
ACTUATED SIGNAL

C A P A C I T Y A N A L Y S I S

APP	LN GR MVM	ADJ FLOW RATE	PMSV LT FLOW	ADJ SAT FLW RT	FLOW RATIO	CRIT ?	GREEN RATIO	LN GR CAPACITY	V/C RATIO
EB	T	311	0	1604	0.194	N	0.600	962	0.323
	TR	311	0	1421	0.219	N	0.600	853	0.365
WB	T	1416	0	3208	0.441	Y	0.600	1925	0.736
NB									
SB	LT	325	0	1498	0.217	Y	0.340	509	0.639

CYCLE LENGTH : 100.0 SUM OF CRITICAL LANES' FLOW RATIOS : 0.658
LOSS TIME PER CYCLE : 6 INTERSECTION V/C : 0.700

L E V E L O F S E R V I C E

APP	LN GR MVM	V/C RATIO	GREEN RATIO	CYC LEN	1st DELAY	LN GR CAP	2nd DELAY	PF	LN GR DELAY	LN GR LOS	APP DELAY	APP LOS
EB	T	0.323	0.600	100	7.5	962	0.1	0.85	6.5	B		
	TR	0.365	0.600	100	7.8	853	0.1	0.85	6.7	B	6.6	B
WB	T	0.736	0.600	100	10.9	1925	1.1	0.85	10.2	B	10.2	B
NB												
SB	LT	0.639	0.340	100	21.1	509	1.9	0.85	19.5	C	19.4	C

INTERSECTION DELAY : 10.5 secs/veh
LEVEL OF SERVICE : B

INTERSECTION :
HERALD ST. EXT. @
BERKELEY ST.
WEEKDAY PM PEAK HOUR 2010 BUILD CBD?Y
ACTUATED SIGNAL

T R A F F I C & R O A D W A Y C O N D I T I O N S

APP	GRADE (%)	HV (%)	ADJ. PKG Y/N	LN. Nm	BUSES (Nb)	PHF	CONF. PEDS (peds/hr)	PED BUTTON Y/N	SEC	ARR TYPE
EB	0	2	N	0	0	0.85	0	N	0.0	3
WB	0	2	N	0	0	0.85	0	N	0.0	3
NB	0	2	N	0	0	0.85	0	N	0.0	3
SB	0	2	N	0	0	0.85	0	N	0.0	3

G E O M E T R I C S / V O L U M E S

APP	VOLUME LT	TH	RT	LANE GROUPS 1 MVM	LNS	WD	2 MVM	LNS	WD	3 MVM	LNS	WD
EB	0	353	0	T	1	12.0						
WB	0	0	0									
NB	0	690	0	T	2	24.0						
SB	0	0	0									

S I G N A L P H A S I N G

APP	PHASE	1ST MV	2ND MV	3RD MV	PROT	PMSV	G	Y+R
EB	1	T					44	5.6
NB	2	T					50	5.0

HANCOCK DEVELOPMENT 11B

INTERSECTION :
HERALD ST. EXT. @
BERKELEY ST.
WEEKDAY PM PEAK HOUR 2010 BUILD CBD ? Y
ACTUATED SIGNAL

V O L U M E A D J U S T M E N T

APPROACH	LANE GROUP MVM	VOLUME	FLOW RATE IN GROUP	LANE UTIL FACTOR	ADJ FLOW RATE	PROP OF TURNS LT	RT
EB	T	353	415	1.00	415	0.00	0.00
WB							
NB	T	690	812	1.00	812	0.00	0.00
SB							

S A T U R A T I O N F L O W

APP	MVM	IDEAL SAT FLOW	# OF LANES	ADJUSTMENT FACTORS WIDTH	H.V.	GRADE	PARK	BUS	AREA	RT	LT	ADJ. FLOW
EB	T	1800	1	1.00	0.99	1.00	1.00	1.00	0.90	1.00	1.00	1604
WB												
NB	T	1800	2	1.00	0.99	1.00	1.00	1.00	0.90	1.00	1.00	3208
SB												

HANCOCK DEVELOPMENT 11B

INTERSECTION :
HERALD ST. EXT. @
BERKELEY ST.
WEEKDAY PM PEAK HOUR 2010 BUILD CBD ? Y
ACTUATED SIGNAL

C A P A C I T Y A N A L Y S I S

APP	LN GR MVM	ADJ FLOW RATE	PMSV LT FLOW	ADJ SAT FLW RT	FLOW RATIO	CRIT ?	GREEN RATIO	LN GR CAPACITY	V/C RATIO
EB	T	415	0	1604	0.259	Y	0.440	706	0.588
WB									
NB	T	812	0	3208	0.253	Y	0.500	1604	0.506
SB									

CYCLE LENGTH : 100.0 SUM OF CRITICAL LANES' FLOW RATIOS : 0.512
LOSS TIME PER CYCLE : 6 INTERSECTION V/C : 0.545

L E V E L O F S E R V I C E

APP	LN GR MVM	V/C RATIO	GREEN RATIO	CYC LEN	1st DELAY	LN GR CAP	2nd DELAY	PF	LN GR DELAY	LN GR LOS	APP DELAY	APP LOS
EB	T	0.588	0.440	100	16.1	706	0.9	0.85	14.4	B	14.3	B
WB												
NB	T	0.506	0.500	100	12.7	1604	0.2	0.85	11.0	B	11.0	B
SB												

INTERSECTION DELAY : 12.1 secs/veh
LEVEL OF SERVICE : B

INTERSECTION :
COLUMBUS AVE. @
CLARENDON ST.
WEEKDAY PM PEAK HOUR 10 B LONG CBD?Y
ACTUATED SIGNAL

TRAFFIC & ROADWAY CONDITIONS

APP	GRADE (%)	HV (%)	ADJ. PKG Y/N	LN. Nm	BUSES (Nb)	PHF	CONF. PEDS (peds/hr)	PED Y/N	BUTTON SEC	ARR TYPE
EB	0	2	Y	10	0	0.89	0	Y	12.5	3
WB	0	2	Y	10	0	0.87	0	Y	9.2	3
NB	0	0	N	0	0	0.90	0	N	0.0	3
SB	0	2	N	0	0	0.89	0	Y	17.0	3

GEOMETRICS / VOLUMES

APP	VOLUME LT	TH	RT	LANE GROUPS 1 MVM	LNS	WD	2 MVM	LNS	WD	3 MVM	LNS	WD
EB	0	328	58	T	1	11.0	TR	1	12.0			
WB	146	1058	0	LT	1	14.0	T	1	14.0			
NB	0	0	0									
SB	123	273	213	LT	1	13.0	T	1	12.0	R	1	12.0

SIGNAL PHASING

APP	PHASE	1ST MV	2ND MV	3RD MV	PROT	PMSV	G	Y+R
EB	1	T	TR		R		58	42
WB	1	LT	T			L	58	42
SB	2	LT	T	R	R	L	34	66

INTERSECTION :
HERALD ST. EXT. @
TREMONT ST. @
ARLINGTON ST:
WEEKDAY PM PEAK HOUR 2010 B CBD?Y
ACTUATED SIGNAL

T R A F F I C & R O A D W A Y C O N D I T I O N S

APP	GRADE (%)	HV (%)	ADJ. PKG LN. Y/N	ADJ. PKG LN. Nm	BUSES (Nb)	PHF	CONF. PEDS (peds/hr)	PED BUTTON Y/N	PED BUTTON SEC	ARR TYPE
EB	0	0	N	0	0	0.90	0	N	0.0	3
WB	0	2	N	0	0	0.85	0	N	0.0	3
NB	0	2	N	0	0	0.85	0	N	0.0	3
SB	0	2	N	0	0	0.85	0	N	0.0	3

G E O M E T R I C S / V O L U M E S

APP	VOLUME LT	VOLUME TH	VOLUME RT	LANE GROUPS 1 MVM	1 LNS	1 WD	2 MVM	2 LNS	2 WD	3 MVM	3 LNS	3 WD
EB	20	223	110	LTR	2	24.0						
WB	0	0	0									
NB	0	810	90	TR	3	36.0						
SB	170	1540	1000	LTR	4	48.0						

S I G N A L P H A S I N G

APP	PHASE	1ST MV	2ND MV	3RD MV	PROT	PMSV	G	Y+R
EB	1	LTR			LR		15	85
NB	2	TR			R		24	76
SB	3	LTR			LR		52	48

HANCOCK DEVELOPMENT 5LEGB

INTERSECTION :
HERALD ST. EXT. @
TREMONT ST. @
ARLINGTON ST.
WEEKDAY PM PEAK HOUR 2010 B CBD ? Y
ACTUATED SIGNAL

V O L U M E A D J U S T M E N T

APPROACH	LANE GROUP MVM	VOLUME	FLOW RATE IN GROUP	LANE UTIL FACTOR	ADJ FLOW RATE	PROP OF TURNS LT	RT
EB	LTR	353	392	1.00	392	0.06	0.31
WB							
NB	TR	900	1059	1.00	1059	0.00	0.10
SB	LTR	2710	3188	1.00	3188	0.06	0.37

S A T U R A T I O N F L O W

APP	MVM	IDEAL SAT FLOW	# OF LANES	ADJUSTMENT FACTORS WIDTH	H.V.	GRADE	PARK	BUS	AREA	RT	LT	ADJ. FLOW
EB	LTR	1800	2	1.00	1.00	1.00	1.00	1.00	0.90	0.95	0.99	3062
WB												
NB	TR	1800	3	1.00	0.99	1.00	1.00	1.00	0.90	0.99	1.00	4739
SB	LTR	1800	4	1.00	0.99	1.00	1.00	1.00	0.90	0.94	1.00	6059

HANCOCK DEVELOPMENT 5LEGB

INTERSECTION :
HERALD ST. EXT. @
TREMONT ST. @
ARLINGTON ST.
WEEKDAY PM PEAK HOUR 2010 B CBD ? Y
ACTUATED SIGNAL

C A P A C I T Y A N A L Y S I S

APP	LN GR MVM	ADJ FLOW RATE	PMSV LT FLOW	ADJ SAT FLW RT	FLOW RATIO	CRIT ?	GREEN RATIO	LN GR CAPACITY	V/C RATIO
EB	LTR	392	0	3062	0.128	Y	0.150	459	0.854
WB									
NB	TR	1059	0	4739	0.223	Y	0.240	1137	0.931
SB	LTR	3188	0	6059	0.526	Y	0.520	3151	1.012

CYCLE LENGTH : 100.0 SUM OF CRITICAL LANES' FLOW RATIOS : 0.877
LOSS TIME PER CYCLE : 9 INTERSECTION V/C : 0.964

L E V E L O F S E R V I C E

APP	LN GR MVM	V/C RATIO	GREEN RATIO	CYC LEN	1st DELAY	LN GR CAP	2nd DELAY	PF	LN GR DELAY	LN GR LOS	APP DELAY	APP LOS
EB	LTR	0.854	0.150	100	31.5	459	10.1	0.85	35.4	D	35.2	D
WB												
NB	TR	0.931	0.240	100	28.3	1137	9.7	0.85	32.3	D	32.2	D
SB	LTR	1.012	0.520	100	18.5	3151	15.0	0.85	28.5	D	28.5	D

INTERSECTION DELAY : 29.9 secs/veh
LEVEL OF SERVICE : D

INTERSECTION :
HERALD ST. EXT. @
TREMONT ST. @
ARLINGTON ST.
WEEKDAY PM PEAK HOUR 2010 B CBD?Y
ACTUATED SIGNAL

TRAFFIC & ROADWAY CONDITIONS

APP	GRADE (%)	HV (%)	ADJ. Y/N	PKG LN. Nm	BUSES (Nb)	PHF	CONF. PEDS (peds/hr)	PED BUTTON Y/N	PED BUTTON SEC	ARR TYPE
EB	0	0	N	0	0	0.90	0	N	0.0	3
WB	0	2	N	0	0	0.85	0	N	0.0	3
NB	0	2	N	0	0	0.85	0	N	0.0	3
SB	0	2	N	0	0	0.85	0	N	0.0	3

GEOMETRICS / VOLUMES

APP	VOLUME LT	TH	RT	LANE GROUPS 1 MVM	LNS	WD	2 MVM	LNS	WD	3 MVM	LNS	WD
EB	20	170	110	LTR	2	24.0						
WB	0	0	0									
NB	0	810	90	TR	3	36.0						
SB	170	1540	1000	LTR	4	48.0						

SIGNAL PHASING

APP	PHASE	1ST MV	2ND MV	3RD MV	PROT	PMSV	G	Y+R
EB	1	LTR			LR		15	85
NB	2	TR			R		24	76
SB	3	LTR			LR		52	48

HANCOCK DEVELOPMENT 5LEG

INTERSECTION :
HERALD ST. EXT. @
TREMONT ST. @
ARLINGTON ST.
WEEKDAY PM PEAK HOUR 2010 B CBD ? Y
ACTUATED SIGNAL

V O L U M E A D J U S T M E N T

APPROACH	LANE GROUP MVM	VOLUME	FLOW RATE IN GROUP	LANE UTIL FACTOR	ADJ FLOW RATE	PROP OF TURNS LT	RT
EB	LTR	300	333	1.00	333	0.07	0.37
WB							
NB	TR	900	1059	1.00	1059	0.00	0.10
SB	LTR	2710	3188	1.00	3188	0.06	0.37

S A T U R A T I O N F L O W

APP	MVM	IDEAL SAT FLOW	# OF LANES	ADJUSTMENT FACTORS WIDTH	H.V.	GRADE	PARK	BUS	AREA	RT	LT	ADJ. FLOW
EB	LTR	1800	2	1.00	1.00	1.00	1.00	1.00	0.90	0.94	0.99	3028
WB												
NB	TR	1800	3	1.00	0.99	1.00	1.00	1.00	0.90	0.99	1.00	4739
SB	LTR	1800	4	1.00	0.99	1.00	1.00	1.00	0.90	0.94	1.00	6059

HANCOCK DEVELOPMENT 5LEG

INTERSECTION :
HERALD ST. EXT. @
TREMONT ST. @
ARLINGTON ST.
WEEKDAY PM PEAK HOUR 2010 B CBD ? Y
ACTUATED SIGNAL

C A P A C I T Y A N A L Y S I S

APP	LN GR MVM	ADJ FLOW RATE	PMSV LT FLOW	ADJ SAT FLW RT	FLOW RATIO	CRIT ?	GREEN RATIO	LN GR CAPACITY	V/C RATIO
EB	LTR	333	0	3028	0.110	Y	0.150	454	0.733
WB									
NB	TR	1059	0	4739	0.223	Y	0.240	1137	0.931
SB	LTR	3188	0	6059	0.526	Y	0.520	3151	1.012

CYCLE LENGTH : 100.0 SUM OF CRITICAL LANES' FLOW RATIOS : 0.859
LOSS TIME PER CYCLE : 9 INTERSECTION V/C : 0.944

L E V E L O F S E R V I C E

APP	LN GR MVM	V/C RATIO	GREEN RATIO	CYC LEN	1st DELAY	LN GR CAP	2nd DELAY	PF	LN GR DELAY	LN GR LOS	APP DELAY	APP LOS
EB	LTR	0.733	0.150	100	30.8	454	4.1	0.85	29.7	D	29.5	D
WB												
NB	TR	0.931	0.240	100	28.3	1137	9.7	0.85	32.3	D	32.2	D
SB	LTR	1.012	0.520	100	18.5	3151	15.0	0.85	28.5	D	28.5	D

INTERSECTION DELAY : 29.4 secs/veh
LEVEL OF SERVICE : D

INTERSECTION :
COLUMBUS AVE. @
CLARENDON ST.
WEEKDAY PM PEAK HOUR 10 B BUILD CBD?Y
ACTUATED SIGNAL

TRAFFIC & ROADWAY CONDITIONS

APP	GRADE (%)	HV (%)	ADJ. PKG LN. Y/N	PKG LN. Nm	BUSES (Nb)	PHF	CONF. PEDS (peds/hr)	PED BUTTON Y/N	PED BUTTON SEC	ARR TYPE
EB	0	2	Y	10	0	0.89	0	Y	12.5	3
WB	0	2	Y	10	0	0.87	0	Y	9.2	3
NB	0	0	N	0	0	0.90	0	N	0.0	3
SB	0	2	N	0	0	0.89	0	Y	17.0	3

GEOMETRICS / VOLUMES

APP	VOLUME LT	VOLUME TH	VOLUME RT	LANE GROUPS 1 MVM	1 LNS	1 WD	2 MVM	2 LNS	2 WD	3 MVM	3 LNS	3 WD
EB	0	456	58	T	1	11.0	TR	1	12.0			
WB	146	1058	0	LT	1	14.0	T	1	14.0			
NB	0	0	0									
SB	348	273	213	LT	1	13.0	T	1	12.0	R	1	12.0

SIGNAL PHASING

APP	PHASE	1ST MV	2ND MV	3RD MV	PROT	PMSV	G	Y+R
EB	1	T	TR		R		58	42
WB	1	LT	T			L	58	42
SB	2	LT	T	R	R	L	34	66

HANCOCK DEVELOPMENT 3AHERBB

INTERSECTION :
COLUMBUS AVE. @
CLARENDON ST.
WEEKDAY PM PEAK HOUR 10 B BUILD CBD ? Y
ACTUATED SIGNAL

V O L U M E A D J U S T M E N T

APPROACH	LANE MVM	GROUP VOLUME	FLOW RATE IN GROUP	LANE UTIL FACTOR	ADJ FLOW RATE	PROP OF TURNS LT	PROP OF TURNS RT
EB	T	257	289	1.00	289	0.00	0.00
	TR	257	289	1.00	289	0.00	0.23
WB	LT	560	644	1.00	644	0.26	0.00
	T	644	740	1.00	740	0.00	0.00
NB							
SB	LT	348	391	1.00	391	1.00	0.00
	T	273	307	1.00	307	0.00	0.00
	R	213	239	1.00	239	0.00	1.00

S A T U R A T I O N F L O W

APP	MVM	IDEAL SAT FLOW	# OF LANES	ADJUSTMENT FACTORS WIDTH	H.V.	GRADE	PARK	BUS	AREA	RT	LT	ADJ. FLOW
EB	T	1800	1	0.97	0.99	1.00	1.00	1.00	0.90	1.00	1.00	1556
	TR	1800	1	1.00	0.99	1.00	0.85	1.00	0.90	0.97	1.00	1316
WB	LT	1800	1	1.07	0.99	1.00	1.00	1.00	0.90	1.00	0.77	1321
	T	1800	1	1.07	0.99	1.00	0.85	1.00	0.90	1.00	1.00	1459
NB												
SB	LT	1800	1	1.03	0.99	1.00	1.00	1.00	0.90	1.00	0.95	1569
	T	1800	1	1.00	0.99	1.00	1.00	1.00	0.90	1.00	1.00	1604
	R	1800	1	1.00	0.99	1.00	1.00	1.00	0.90	0.85	1.00	1363

HANCOCK DEVELOPMENT 3AHERBB

INTERSECTION :
COLUMBUS AVE. @
CLARENDON ST.
WEEKDAY PM PEAK HOUR 10 B BUILD CBD ? Y
ACTUATED SIGNAL

C A P A C I T Y A N A L Y S I S

APP	LN GR MVM	ADJ FLOW RATE	PMSV LT FLOW	ADJ SAT FLW RT	FLOW RATIO	CRIT ?	GREEN RATIO	LN GR CAPACITY	V/C RATIO
EB	T	289	0	1556	0.186	N	0.580	902	0.320
	TR	289	0	1316	0.220	N	0.580	763	0.379
WB	LT	644	0	1321	0.488	N	0.580	766	0.841
	T	740	0	1459	0.507	Y	0.580	846	0.875
NB									
SB	LT	391	0	1569	0.249	Y	0.340	533	0.734
	T	307	0	1604	0.191	N	0.340	545	0.563
	R	239	0	1363	0.175	N	0.340	463	0.516

CYCLE LENGTH : 100.0 SUM OF CRITICAL LANES' FLOW RATIOS : 0.756
LOSS TIME PER CYCLE : 6 INTERSECTION V/C : 0.804

L E V E L O F S E R V I C E

APP	LN GR MVM	V/C RATIO	GREEN RATIO	CYC LEN	1st DELAY	LN GR CAP	2nd DELAY	PF	LN GR DELAY	LN GR LOS	APP DELAY	APP LOS
EB	T	0.320	0.580	100	8.2	902	0.1	0.85	7.1	B		
	TR	0.379	0.580	100	8.6	763	0.2	0.85	7.5	B	7.3	B
WB	LT	0.841	0.580	100	13.1	766	5.9	0.85	16.1	C		
	T	0.875	0.580	100	13.6	846	7.2	0.85	17.7	C	16.9	C
NB												
SB	LT	0.734	0.340	100	22.1	533	3.6	0.85	21.8	C		
	T	0.563	0.340	100	20.5	545	1.0	0.85	18.3	C		
	R	0.516	0.340	100	20.1	463	0.8	0.85	17.8	C	19.6	C

INTERSECTION DELAY : 15.8 secs/veh
LEVEL OF SERVICE : C

INTERSECTION :
HERALD ST. EXT. @
BERKELEY ST.
WEEKDAY PM PEAK HOUR 2010 BUILD CBD?Y
ACTUATED SIGNAL

T R A F F I C & R O A D W A Y C O N D I T I O N S

APP	GRADE (%)	HV (%)	ADJ. PKG LN. Y/N	ADJ. PKG LN. Nm	BUSES (Nb)	PHF	CONF. PEDS (peds/hr)	PED BUTTON Y/N	PED BUTTON SEC	ARR TYPE
EB	0	2	N	0	0	0.85	0	N	0.0	3
WB	0	2	N	0	0	0.85	0	N	0.0	3
NB	0	2	N	0	0	0.85	0	N	0.0	3
SB	0	2	N	0	0	0.85	0	N	0.0	3

G E O M E T R I C S / V O L U M E S

APP	VOLUME LT	VOLUME TH	VOLUME RT	LANE GROUPS 1 MVM	1 LNS	1 WD	2 MVM	2 LNS	2 WD	3 MVM	3 LNS	3 WD
EB	0	353	0	T	1	12.0						
WB	0	0	0									
NB	0	690	0	T	2	24.0						
SB	0	0	0									

S I G N A L P H A S I N G

APP	PHASE	1ST MV	2ND MV	3RD MV	PROT	PMSV	G	Y+R
EB	1	T					44	56
NB	2	T					50	50

HANCOCK DEVELOPMENT 11B

INTERSECTION :
HERALD ST. EXT. @
BERKELEY ST.
WEEKDAY PM PEAK HOUR 2010 BUILD CBD ? Y
ACTUATED SIGNAL

V O L U M E A D J U S T M E N T

APPROACH	LANE MVM	GROUP VOLUME	FLOW RATE IN GROUP	LANE UTIL FACTOR	ADJ FLOW RATE	PROP OF TURNS LT	PROP OF TURNS RT
EB	T	353	415	1.00	415	0.00	0.00
WB							
NB	T	690	812	1.00	812	0.00	0.00
SB							

S A T U R A T I O N F L O W

APP	MVM	IDEAL SAT FLOW	# OF LANES	ADJUSTMENT FACTORS WIDTH	H.V.	GRADE	PARK	BUS	AREA	RT	LT	ADJ. FLOW
EB	T	1800	1	1.00	0.99	1.00	1.00	1.00	0.90	1.00	1.00	1604
WB												
NB	T	1800	2	1.00	0.99	1.00	1.00	1.00	0.90	1.00	1.00	3208
SB												

INTERSECTION :
HERALD ST. EXT. @
BERKELEY ST.
WEEKDAY PM PEAK HOUR 2010 BUILD CBD ? Y
ACTUATED SIGNAL

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C A P A C I T Y A N A L Y S I S

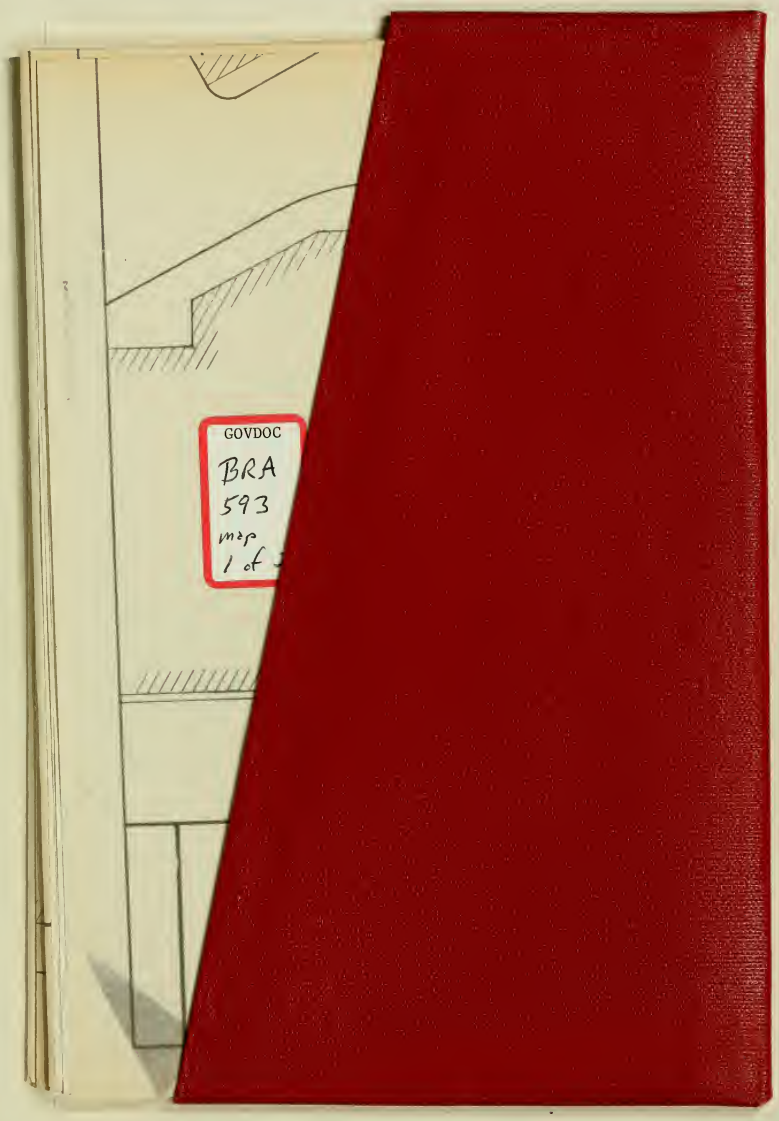
APP	LN GR MVM	ADJ FLOW RATE	PMSV LT FLOW	ADJ SAT FLW RT	FLOW RATIO	CRIT ?	GREEN RATIO	LN GR CAPACITY	V/C RATIO
EB	T	415	0	1604	0.259	Y	0.440	706	0.588
WB									
NB	T	812	0	3208	0.253	Y	0.500	1604	0.506
SB									

CYCLE LENGTH : 100.0 SUM OF CRITICAL LANES' FLOW RATIOS : 0.512
LOSS TIME PER CYCLE : 6 INTERSECTION V/C : 0.545

L E V E L O F S E R V I C E

APP	LN GR MVM	V/C RATIO	GREEN RATIO	CYC LEN	1st DELAY	LN GR CAP	2nd DELAY	PF	LN GR DELAY	LN GR LOS	APP DELAY	APP LOS
EB	T	0.588	0.440	100	16.1	706	0.3	0.85	14.4	B	14.3	B
WB												
NB	T	0.506	0.500	100	12.7	1604	0.2	0.85	11.0	B	11.0	B
SB												

INTERSECTION DELAY : 12.1 secs/veh
LEVEL OF SERVICE : B


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NOTE: EXIST. SIGNALS, SIGNINGS, AND PAVEMENT MARKINGS LOCATIONS ARE APPROXIMATE ONLY

PROP. HERALD STREET EXTENSION

AVENUE

MASS.

(EASTBOUND)

CLARENDON

COLUMBUS

PROP 2' RETAINING WALL

PROP SIGN

NO LEFT TURN

EXIST SIGNAL TO REMAIN

INSTALL NEW SIGNALS

EXIST SIGNALS TO REMAIN

EXIST SIGN

EXIST. SIGN

PROP SIGNS

ONLY

Planter

Planters

Concrete Median

Rail Road Tracks

Conc. Wall

Granite Wall

MASS. TURNPIKE EXTENSION (WESTBOUND)

(ROUTE 90)

(WESTBOUND)

CAHNER PLACE

PROP. HANCOCK GARAGE AND OFFICE COMPLEX

STANHOPE STREET

STREET

Exist. John Hancock Parking Garage

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HANCOCK GARAGE AND OFFICE COMPLEX
HERALD STREET EXTENSION
ALTERNATE P-3B

1 OF 2

1"=20'

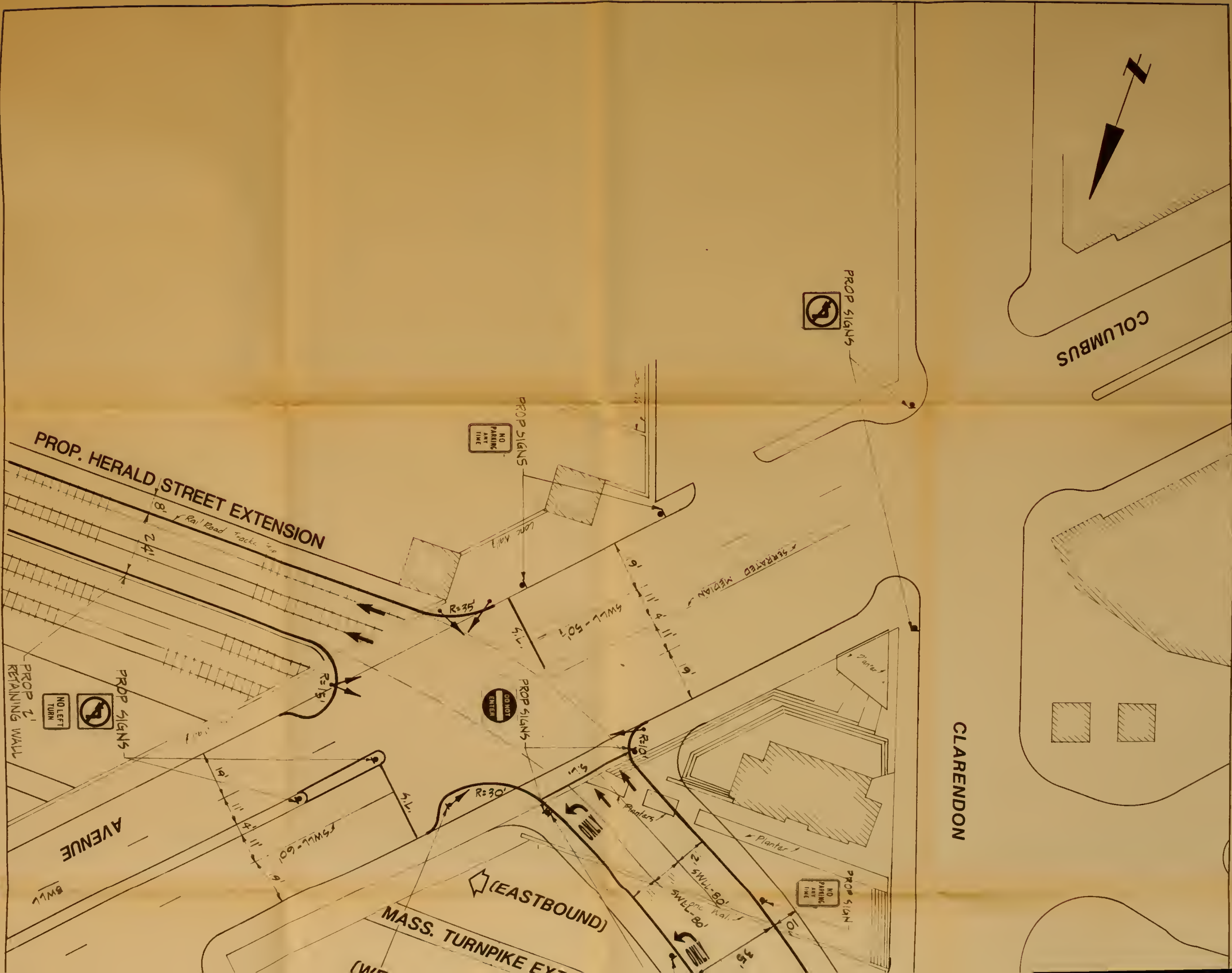
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ENGINEERS, ENVIRONMENTAL CONSULTANTS & PLANNERS
336 Baker Avenue • Concord • Massachusetts 01742 • (617)371-1692


PROP. HERALD STREET EXTENSION
Rail Road Tracks
COLUMBUS
CLARENDON
AVENUE
(EASTBOUND)
MASS. TURNPIKE EXT
PROP SIGNS
PROP SIGN
NO PARKING ANY TIME
NO LEFT TURN
DO NOT ENTER
ONLY
SERRATED MEDIAN
PROP 2' RETAINING WALL
Conc Wall
Planters
Planter
SWLL-50'
SWLL-60'
SWLL-80'
R=35'
R=15'
R=30'
R=10'
S.L.

MASS. TURNPIKE EXTENSION
(WESTBOUND)

(ROUTE 90)

CAHNER PLACE

STREET

STANHOPE STREET

PROP. HANCOCK GARAGE AND OFFICE COMPLEX

PROP SIGNS

PROP SIGN

Exist. John Hancock Parking Garage

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HANCOCK GARAGE AND OFFICE COMPLEX
HERALD STREET EXTENSION
ALTERNATE P-3A

1"=20'

JUNE 1988

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